GM UPFITTER INTEGRATION

BODY BUILDER MANUAL

FOR

2015 CHEVROLET COLORADO/GMC CANYON

ELECTRICAL SECTION

Revision 1.0 *www.gmupfitter.com* *September 17, 2014*

Note to User:
As part of our mission to provide an up-to-date website that includes detailed Body Builder Manuals, Technical Bulletins, and Best Practice Manuals, we are now using sectional excerpts directly from the General Motors Service Information publications for our Electrical Body Builder Manuals.

You will note that the section numbers are non-sequential as we have provided only those that are believed to be the most pertinent to the Upfitter community and best suited to their needs.*

This new usage of the Service Information provides the opportunity for us to remain consistent with the changes that take place throughout the model year and to provide you updated information in a more timely fashion.

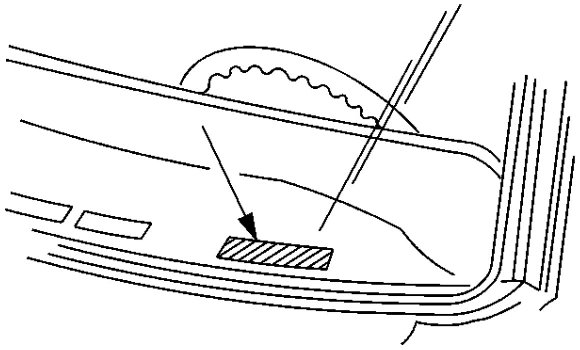
**** If you would like to have access to all of the electrical Service Information, please apply for a subscription from ACDelco at http://acdelcotechconnect.com/html/tss_tech_esi.jsp***

General Information

General Information

Introduction

Vehicle, Engine and Transmission ID and VIN Location, Derivative and Usage



The VIN plate is the legal identifier of the vehicle. The VIN plate is located on the upper left corner of the instrument panel (I/P) and can be seen through the windshield from the outside of the vehicle:

Vehicle Identification Number (VIN) System

Position	Definition	Character	Description
1	Country of Origin	1	United States
2	Manufacturer	G	General Motors
3	Vehicle Brand/Type	B	Chevrolet Incomplete Truck
		C	Chevrolet Truck
		D	GMC Incomplete Truck
		T	GMC Truck
4	GVWR/Brake System/Body Style	G	5001–6000/Hydraulic – Crew Cab (43)
		H	5001–6000/Hydraulic – Extended Cab (53)
5–6	Chassis/Series	S/A	Chevrolet Colorado, Work Truck 2WD
		S/B	Chevrolet Colorado, LT 2WD
		S/C	Chevrolet Colorado, Z71 2WD
		T/A	Chevrolet Colorado, Work Truck 4WD
		T/B	Chevrolet Colorado, LT 4WD
		T/C	Chevrolet Colorado, Z71 4WD
		5/A	GMC Canyon, Work Truck 2WD
		5/B	GMC Canyon, SLE 2WD

		5/C	GMC Canyon, SLT 2WD
		6/A	GMC Canyon, Work Truck 4WD
		6/B	GMC Canyon, SLE 4WD
		6/C	GMC Canyon, SLT 4WD
7	Restraint System	E	Active Manual Belts, Airbags – Driver and Passenger Front (1st row), Front Seat Side (1st row), Roof Side (All seating rows)
8	Engine Type	A	RPO LCV, Engine Gas, 4 Cylinder, 2.5L, L4, SIDI, DOHC, DCVCP, VVT, E85 MAX, E0–E100, Aluminum
		3	RPO LFX, Engine Gas, 6 Cylinder, 3.6L, SIDI, DOHC, VVT, E85 MAX, Aluminum, GM
9	Check Digit	—	Check Digit
10	Model Year	F	2015
11	Plant Location	1	Wentzville, MO
12–17	Plant Sequence Number	—	Plant Sequence Number

2.5L LCV Engine ID and VIN Derivative Location

Refer to CELL Link Error - Link target cell (cell ID 220437) is invalid for this publication..

3.6L LFX Engine ID and VIN Derivative Location

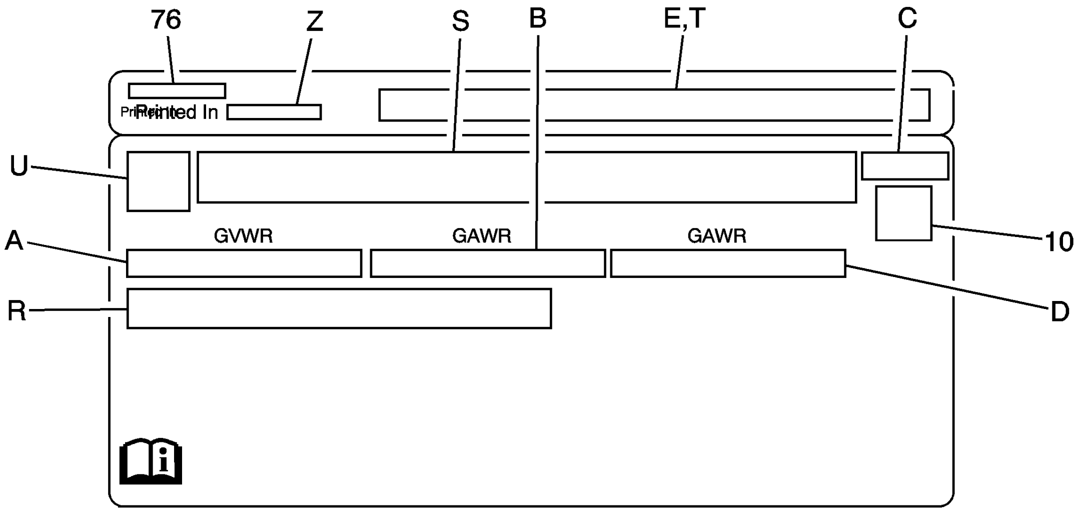
Refer to CELL Link Error - Link target cell (cell ID 72279) is invalid for this publication..

6L50 MYB Transmission ID and VIN Derivative Location

Refer to CELL Link Error - Link target cell (cell ID 135940) is invalid for this publication..

Vehicle Certification, Tire Placard, Anti-Theft, and Service Parts ID Label

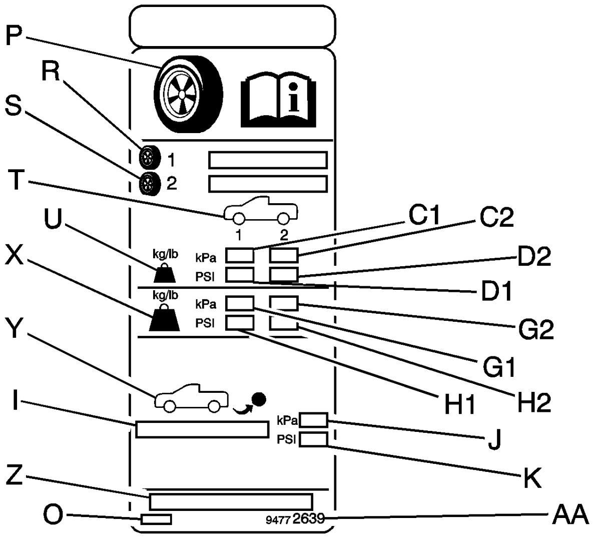
Vehicle Certification Label



Vehicle Certification, Tire Placard, Anti-Theft, and Service Parts ID Label

Callout	Description
A	Maximum Gross Vehicle Weight (GVW) in Kilograms (Optional)
B	Maximum Gross Axle Weight – Front (GAWF) in Kilograms (Optional)
C	Final Date of Manufacture (Month and Year MM/YY) Date of manufacture callout C is to reflect the date that the vehicle is counted as built. In those cases where a replacement label is needed, the replacement label should reflect the actual build date not the date of replacement.
D	Maximum Gross Axle Weight – Rear (GAWR) in Kilograms (Optional)
E	Country Product Line (CPL) Number (Optional)
R	Vehicle Identification Number (VIN)
S	Name of Legal Entity (Manufacturer)
T	Current Sequence Number (CSN) (Optional)
U	Logo (Optional)
Z	Vendor to Supply Country of Origin of Blank Stock (When Required)
10	2D Bar Code (Datamatrix)
76	Pre-Printed Part Number Location (Optional) Part number location to print on waste portion of label stock.

Tire Placard



Vehicle Certification, Tire Placard, Anti-Theft, and Service Parts ID Label

Callout	Description
C1	Vehicle Normal Load Condition Front Tire Cold Inflation Pressure (kPa)
C2	Vehicle Normal Load Condition Rear Tire Cold Inflation Pressure (kPa)
D1	Vehicle Normal Load Condition Front Tire Cold Inflation Pressure (PSI)
D2	Vehicle Normal Load Condition Rear Tire Cold Inflation Pressure (PSI)
G1	Gross Vehicle Mass Load Condition Front Tire Cold Inflation Pressure (kPa)
G2	Gross Vehicle Mass Load Condition Rear Tire Cold Inflation Pressure (kPa)
H1	Gross Vehicle Mass Load Condition Front Tire Cold Inflation Pressure (PSI)
H2	Gross Vehicle Mass Load Condition Rear Tire Cold Inflation Pressure (PSI)
I	Spare Tire Size Designation and Service Description
J	Spare Tire Cold Inflation Pressure (kPa)
K	Spare Tire Cold Inflation Pressure (PSI)
O	Broadcast Code For Pre-Printed Label (Labels Printed Outside Vehicle Assembly Plant) May Be Optional
P	Generic Tire Picture
R	Front Tire Axle Position
S	Rear Tire Axle Position
T	Vehicle Profile With Axle Positions
U	Vehicle Normal Load Condition
X	Gross Vehicle Mass Load Condition
Y	Vehicle Profile For Spare Position

Z	Vehicle Identification Number (VIN) For Computer Generated Labels (Labels Printed Inside Vehicle Assembly Plant) May Be Optional
AA	Tire Placard Label Format Part Number

RPO Code List

RPO	Description
4AA	INTERIOR TRIM – JET BLACK
4D7	INTERIOR TRIM – JET BLACK/DK ASH
4DP	INTERIOR TRIM – COCOA/DUNE
4EE	INTERIOR TRIM – JET BLACK/DK GALVANIZED WITH ICED BLUE ACCENT
4GB	INTERIOR TRIM – JET BLACK/ COBALT RED
5G8	CALIBRATION – ACTIVATION 'ON', TOW/HAUL MODE
5JY	ACCESSORY – TONNEAU – RR COMPT – SOFT FOLDING
5VI	ACCESSORY – TIE DOWN RINGS – CARGO AREA
5W7	ACCESSORY – AIR FILTER – PERFORMANCE
5Y3	ACCESSORY – TOW BALL – TRAILER HITCH
5Y4	ACCESSORY – COVER – TRAILER HITCH TOW BALL
9B7	MIRROR AUX – O/S SPOT, CONVEX
9F9	FUEL TANK – 76L, 20 GAL
A28	WINDOW RR – FULL WIDTH, SLIDING
AAQ	ADJUSTER PASS ST – POWER, 4 WAY
ACO	IDENTIFICATION – ACCESSORY CATALOG OFFERING
AH6	ADJUSTER FRT ST – SEAT, POWER, 4 WAY, VERT, DRIVER
AJ2	SEAT RR – FOLDING, JUMPSEAT
AKJ	WINDSHIELD STYLE – SHADE BAND
AL9	LUMBAR DRIVER – SEAT, POWER, 2 WAY
AM7	SEAT RR – FOLDING
AR7	SEAT – FRT BKT, STANDARD
AT9	LUMBAR PASSENGER – SEAT, POWER, 2 WAY
ATG	LOCK CONTROL, ENTRY – REMOTE ENTRY, STANDARD RANGE
ATZ	SEAT RR – NONE

AXG	WINDOW REG DRVR DR – POWER OPERATED, EXPRESS UP/DOWN
AY0	RESTRAINT SYSTEM – SEAT, INFLATABLE, DRIVER AND PASS FRT, SEAT SIDE, ROOF SIDE
B30	COVERING FLOOR – CARPET
B34	COVERING FRT – FLOOR MATS, CARPETED INSERT
B35	COVERING REAR – FLOOR MATS, CARPETED INSERT
B38	COVERING FLOOR – VINYL, FRT AND RR, FULL WIDTH
BAE	EQUIPMENT – SECURITY SYSTEM, IMMOBILIZATION
BTV	REMOTE START – ENGINE
BW4	MOLDING B/S (OPEL) – EXTR, MLDG, SIDE WINDOW REVEAL, CHROME
BW5	MOLDING B/S (OPEL) – EXTR, MLDG, SIDE WINDOW REVEAL, BLACK
BW7	ORNAMENTATION – EXTR, PLR APLQ
BWN	STEPS – CORNER ASSIST, BUMPER
BYH	FOOT REST – DRIVER
C49	DEFOGGER – RR WINDOW, ELECTRIC
C67	HVAC SYSTEM – AIR CONDITIONER FRT, ELECTRONIC CONTROLS
C68	HVAC SYSTEM – AIR CONDITIONER FRT, AUTO, ELECTRONIC CONTROLS
C74	LAMP – INTR, ROOF, DUAL READING
CGN	LINER – PUBX, SPRAY ON
D07	CONSOLE – FRT COMPT, FLOOR, CUSTOM
D31	MIRROR I/S R/V – TILT
D72	HANDLE O/S DOOR – BLACK
D75	HANDLE O/S DOOR – BODY COLOR
D87	HANDLE, REAR CLOSURE – O/S, L/GATE, R/CMPT, BLACK
DBI	MIRROR O/S – LH AND RH, MANUAL CONTROL, MANUAL FOLDING
DD8	MIRROR I/S R/V – LT SENSITIVE

DEG	SUNSHADE – DRIVER, W/MIRROR COVER, ILLUM, SLIDING, PASS, W/MIRROR, COVER, ILLUM, SLIDING
DK6	CONSOLE ROOF – INTERIOR
DL6	MIRROR O/S – LH AND RH, REMOTE CONTROL, ELECTRIC, MANUAL FOLDING,COLOR
DL9	MIRROR O/S – LH AND RH, REMOTE CONTROL, ELECTRIC, HEATED, CHROME
DLU	MIRROR I/S FRT VAN – SUNSHADE, DRIVER, W/O MIRROR, PASS, W/MIRROR AND COVER
DNS	EQUIPMENT – SUPPLIER INSTALLED
E20	HANDLE O/S DOOR – CHROME
E25	ACCESSORY – ASSIST STEPS – TUBULAR – CHROME
E33	HANDLE – I/S, DR, GLOSSY CHROME
E49	HANDLE – I/S, DR, JET BLACK
E63	BODY EQUIPMENT – FLEETSIDE PICK-UP BOX
ECA	EQUIPMENT – FOLDABLE KEY
EF7	COUNTRY – UNITED STATES OF AMERICA (USA)
EN5	END GATE – LOCKING
FE9	CERTIFICATION – EMISSION, FEDERAL
FJW	VEHICLE FUEL – GASOLINE E15
FX3	RIDE AND HANDLING – AUTOMATIC ELECTRONIC CONTROLLED
G7C	PRIMARY COLOR – EXTERIOR, PULL ME OVER RED SOLID (130X)
G7J	PRIMARY COLOR – EXTERIOR, UNRIPENED GREEN MET (136X)
G7P	PRIMARY COLOR – EXTERIOR, TIN ROOF RUSTED MET (138X)
G80	AXLE POSITRACTION – LIMITED SLIP
GAN	PRIMARY COLOR – EXTERIOR, SWITCHBLADE SILVER MET (G) 636R
GAT	APPEARANCE PACKAGE – GMC "ALL TERRAIN"
GAZ	PRIMARY COLOR – EXTERIOR, SUMMIT WHITE (G) 8624

GBA	PRIMARY COLOR – EXTERIOR, BLACK (G) 8555
GBV	PRIMARY COLOR – EXTERIOR, CYBER GRAY MET (G) 637R
GT5	AXLE REAR – 4.10 RATIO
GU6	AXLE REAR – 3.42 RATIO
GWX	PRIMARY COLOR – EXTERIOR, SUBTERRANEAN MET (105V)
H0K	INTERIOR TRIM CONFIG – LEATHER, LEVEL 3, COCOA/DUNE
H0U	INTERIOR TRIM CONFIG – CLOTH, LEVEL 2, JET BLACK
H2Q	INTERIOR TRIM CONFIG – VINYL, LEVEL 1, JET BLACK /DK ASH
H2R	INTERIOR TRIM CONFIG – CLOTH, LEVEL 1, JET BLACK/ DK ASH
H2S	INTERIOR TRIM CONFIG – CLOTH, LEVEL 2, JET BLACK/DK ASH
H2T	INTERIOR TRIM CONFIG – CLOTH, LEVEL 2, COCOA/DUNE
H2U	INTERIOR TRIM CONFIG – LEATHER, LEVEL 3, JET BLACK
H2V	INTERIOR TRIM CONFIG – LEATHER, LEVEL 3, JET BLACK/DK ASH
HHI	INTERIOR TRIM CONFIG – LEATHER, LEVEL 1, JET BLACK/WARM FASHION
HJX	INTERIOR TRIM CONFIG – CLOTH, LEVEL 4, JET BLACK/COBALT RED
I15	ENGINEERING YEAR – 2015
IO3	RADIO – INFOTAINMENT SYSTEM – BASE HMI
IO4	RADIO – INFOTAINMENT SYSTEM – BASE HMI, ENHANCED CONNECTIVITY
IO5	RADIO – INFOTAINMENT SYSTEM – UPLEVEL HMI, ENHANCED CONNECTIVITY
IO6	RADIO – INFOTAINMENT SYSTEM – UPLEVEL HMI, ENHANCED CONNECTIVITY, EMBEDDED NAVIGATION
JHD	CONTROL – HILL DESCENT, GEAR HOLD
JL9	BRAKE SYSTEM – PWR, FRT AND RR DISC, ANTILOCK, FRT AND RR WHL
K05	HEATER ENG – BLOCK

K34	CRUISE CONTROL – AUTOMATIC, ELECTRONIC
KA1	HEATER SEAT FRT – DRVR AND PASS
KG4	GENERATOR – 150 AMP
LCV	ENGINE – GAS, 4 CYL, 2.5L, L4, SIDI, DOHC, DCVCP, VVT, E85 MAX, E0-E100, ALUM
LFX	ENGINE – GAS, 6 CYL, 3.6L, SIDI, DOHC, VVT, E85 MAX, ALUM, GM
MCY	PORT, ELEK DEVICE – USB ONLY
MCZ	PORT, MULTI ELEK DEV – USB
MYB	TRANSMISSION – AUTO 6 SPD, 6L50
N30	STEERING WHEEL – DELUXE
N33	STEERING COLUMN – TILT TYPE
N37	STEERING COLUMN – TILT, TELESCOPING
N8D	TRANSMISSION – MAN 6 SPD, 85MM, 4.45 1ST, 2.56 2ND, 1.53 3RD, 1.00 4TH, 0.87 5TH, 0.76 6TH
NE1	CERTIFICATION – EMISSION, GEOGRAPHICALLY RESTRICTED REGISTRATION FOR VEHICLES UP TO 14,000 LBS GVW (USE 2003 MDL YR
NP5	STEERING WHEEL – LEATHER WRAPPED
NQ6	TRANSFER CASE – 2 SPD, ACTIVE, PART TIME 4WD, L/H DROP, LOW RATIO 2.72:1
NQ7	TRANSFER CASE – 2 SPD, SWITCH ACTIVATED, PART TIME 4WD, L/H DROP, LOW RATIO 2.72:1
NT7	EMISSION SYSTEM – FEDERAL, TIER 2
NU5	EMISSION SYSTEM – CALIFORNIA, BIN 4
NW9	TRACTION CONTROL – ELECTRONIC
NY7	SHIELD – TRANSFER CASE
PPA	EQUIPMENT – ASSIST, OPEN AND CLOSE, TAILGATE
PZX	WHEEL – 18 X 8.5, J, ALUMINUM, DESIGN 2
Q5U	WHEEL – 17 X 8.0, J, ALUMINUM, DESIGN 2
Q5W	WHEEL – 17 X 8.0, J, ALUMINUM, DESIGN 1
QDC	TIRE SPARE – T175/90D18 LL 111M BW SPR
QHE	TIRE ALL – 255/65R17 SL 110T BW AT

QHR	TIRE ALL – 255/65R17 SL 110T BW ALS
QIA	TIRE ALL – 265/60R18 SL 110T BW AL2
QJJ	TIRE ALL – 265/70R16 SL 112T BW ALS
R1U	WHEEL – 17 X 8.0, J, ALUMINUM, DESIGN 3
R28	WHEEL – 17 X 8.0, J, ALUMINUM, DESIGN 4
RS1	WHEEL – 16 X 7.0, J, ALUMINUM, DESIGN 1
RS2	WHEEL – 16 X 7.0, J, STEEL, DESIGN 1
RT5	WHEEL – 18 X 8.5, J, ALUMINUM, DESIGN 1
RTX	WHEEL SPARE – 18 X 4.5, B, ALUMINUM, DESIGN 1
RVG	ACCESSORY – ADAPTER – TRAILER HARNESS
RVP	ACCESSORY – ASSIST STEPS – REMOVABLE
RVS	ACCESSORY – ASSIST STEPS – TUBULAR – ROUND – BLACK
RVX	ACCESSORY – BALL MOUNT – TRAILER HITCH
RVY	ACCESSORY – PUBX CARGO DIVIDER
RW6	ACCESSORY – BED STORAGE BOX – FIXED FULL WIDTH – METAL
RWS	ACCESSORY – FLOOR MATS – CARPET
RXH	ACCESSORY – CENTER CAP – WHEEL – DESIGN 1
RXQ	ACCESSORY – CONVENIENCE NET – BED MOUNTED
RYK	ACCESSORY – REAR SEAT INFOTAINMENT SYSTEM 1
RYT	ACCESSORY – FIRST AID KIT
RZW	ACCESSORY – HARNESS – TRAILER HITCH
S08	ACCESSORY – HIGHWAY SAFETY KIT
S1K	WHEEL SPARE – 16 X 7.0, J, STEEL, DESIGN 1
S41	ACCESSORY – LINER – WHEEL HOUSE
S42	ACCESSORY – LOAD STOPS – UTILITY RACK
S44	ACCESSORY – LOCKING PIN – TRAILER HITCH
S47	ACCESSORY – LUG NUTS

S52	ACCESSORY – MOLDED HOOD PROTECTOR – SMOKED
S6P	ACCESSORY – REMOTE START KIT
SAO	ACCESSORY – SMOKERS PACKAGE
SCZ	ACCESSORY – TAILGATE HANDLE – ALTERNATE FINISH – CHROME
SD2	ACCESSORY – TIRE – IN-HOUSE DEVELOPMENT
SDE	ACCESSORY – TRAILER HITCH – REMOVABLE
SDI	ACCESSORY – TRIANGLE – REFLECTIVE
SDS	ACCESSORY – WEATHER DEFLECTORS – SIDE WINDOW – SMOKED
SE4	ACCESSORY – WHEEL – 18" – ALUMINUM – DESIGN 1
SE5	ACCESSORY – WHEEL – 18" – ALUMINUM – DESIGN 2
SE6	ACCESSORY – WHEEL – 18" – ALUMINUM – DESIGN 3
SE7	ACCESSORY – WHEEL – 18" – ALUMINUM – DESIGN 4
SF5	ACCESSORY – WHEEL FLARES – ALTERNATE DESIGN – MOLDED COLOR
SFE	ACCESSORY – WHEEL LOCKS
SID	ACCESSORY – DROP HITCH – BUMPER MOUNTED
SIE	ACCESSORY – PUBX TIERED STORAGE
SL6	ACCESSORY – PUBX CARGO RAIL HOOKS
SL7	ACCESSORY – PUBX LADDER/UTILITY RACK STANCHIONS
T3C	HEADLAMP FUNCTION – PROJECTOR, LOW/HIGH BEAM (DO NOT USE AFTER '09 MAJOR PROGRAMS, USE HDL&HDL CONT&VCS FAM AS NEEDED)
T3U	LAMP FRT FOG – FRT FOG
T4A	HEADLAMPS – HALOGEN
TCA	LAMP – DOME, CENTER
TCK	DEFLECTOR – RR TIRE, AIR
TR0	LAMP – INTR, ROOF, RR, COURTESY AND DUAL READING

U19	SPEEDOMETER – INST, KILO AND MILES, KILO ODOMETER
U2K	DIGITAL AUDIO SYSTEM – S-BAND
U73	ANTENNA – FIXED, RADIO
UDC	DISPLAY INSTRUMENT – DRIVER INFO ENHANCED (ONE COLOR GRAPHIC)
UDD	DISPLAY INSTRUMENT – DRIVER INFO ENHANCED (MULTI COLOR STANDARD GRAPHIC)
UE1	COMMUNICATION SYSTEM – VEHICLE, ONSTAR
UEU	SENSOR INDICATOR – FORWARD COLLISION ALERT
UF2	LAMP – CARGO
UFL	LANE ACTIVE SAFETY – DEPARTURE WARNING
UMN	SPEEDOMETER – INST, MILES AND KILO, MILES ODOMETER
UQ3	SPEAKER SYSTEM – ENHANCED AUDIO
UQA	SPEAKER SYSTEM – PREMIUM AUDIO BRANDED WITH AMPLIFIER
USR	RECEPTACLE – USB
UTJ	THEFT DETERENT – ELECTRICAL, UNAUTHORIZED ENTRY
UVC	VISION – REAR VIEW, MONO
VAT	ACCESSORY – GRILLE/GRILLE INSERTS – ALTERNATE FINISH – CHROME
VAV	ACCESSORY – FLOOR MATS – ALL WEATHER
VBR	ACCESSORY – PUBX RUBBER MAT
VJH	BUMPER RR – CHROME
VJQ	HOOK – TOW, FRT
VK3	LICENSE PLATE FRONT – FRT MOUNTING PKG
VKU	ACCESSORY – MIRROR CAPS – CHROME
VKY	ACCESSORY – DOOR HANDLES – ALTERNATE FINISH – CHROME
VPB	ACCESSORY – TONNEAU – RR COMPT – VINYL W/ INTEGRAL CROSSBOW SUPPORTS

VQK	ACCESSORY – SPLASH GUARDS – CUSTOM MOLDED
VQY	ACCESSORY – TOW HOOKS – CHROME
VQZ	ACCESSORY – EXHAUST TIP – DESIGN 1
VT5	BUMPER RR – COLOR KEYED
VUK	ACCESSORY – TAILGATE LINER – PUBX
VV4	COMMUNICATION EQUIP – MOBILE INTERNET CONNECTIVITY
VZX	ACCESSORY – PUBX BEDLINER
W03	ACCESSORY – HEATED SEATS
W1Y	CONTROL – STEERING WHEEL, RADIO, REDUNDANT CONTROLS
WBC	ACCESSORY – EXHAUST UPGRADE – DUAL MODE
WEN	PLANT CODE – WENTZVILLE, MO, USA
WMF	VIN MODEL YEAR – 2015
X88	MARKET BRAND – CHEVROLET
XAJ	ACCESSORY – TIRE – 265/60R18 SL 110T BW AL2 – VAR1
YF5	CERTIFICATION – EMISSION, CALIFORNIA
YM8	IDENTIFICATION – LIMITED PERSONALIZATION OPTION (LPO)
Z49	COUNTRY – CANADA
Z71	CHASSIS PACKAGE – "OFF ROAD"
Z82	TRAILER PROVISIONS – SPECIAL EQUIPMENT, H.D.
Z85	CHASSIS PACKAGE – INCREASED CAPACITY
Z88	MARKET BRAND – GMC
ZJJ	TIRE SPARE – 265/70R16 SL 112T BW ALS
ZW9	BODY EQUIPMENT – BASE BODY OR CHASSIS
ZY1	COLOR COMBINATION – SOLID

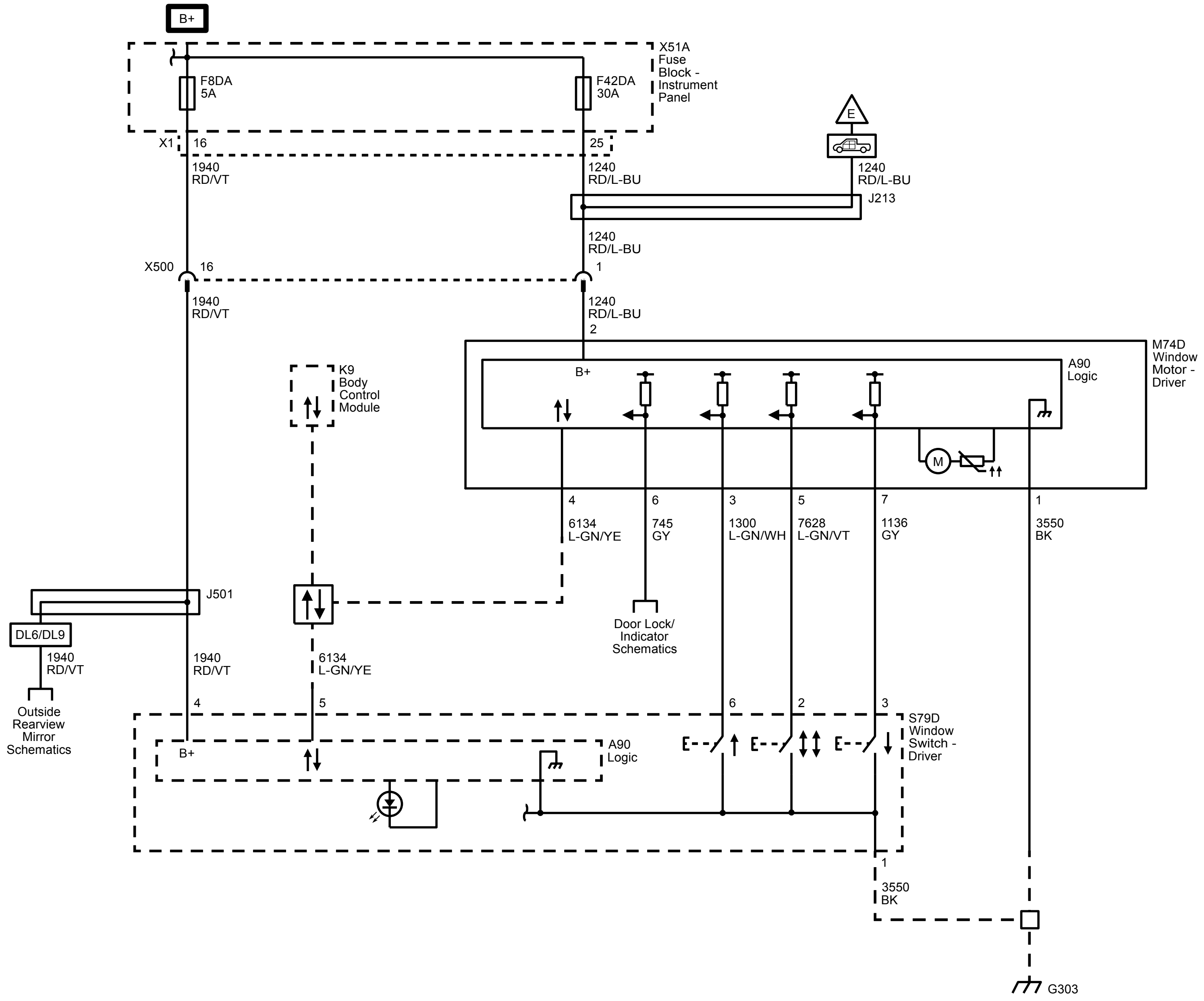
Body Systems

Fixed and Moveable Windows

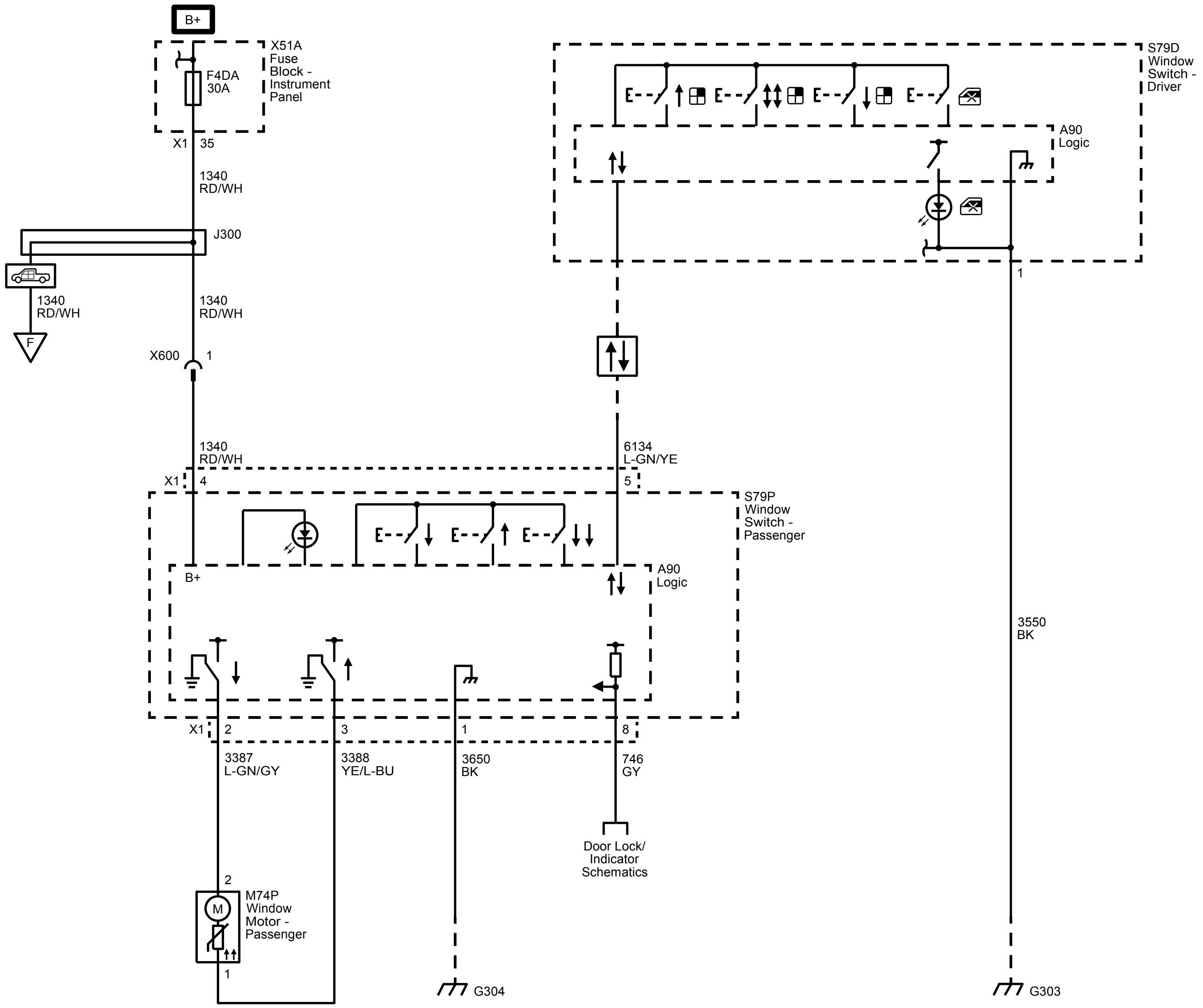
Schematic and Routing Diagrams

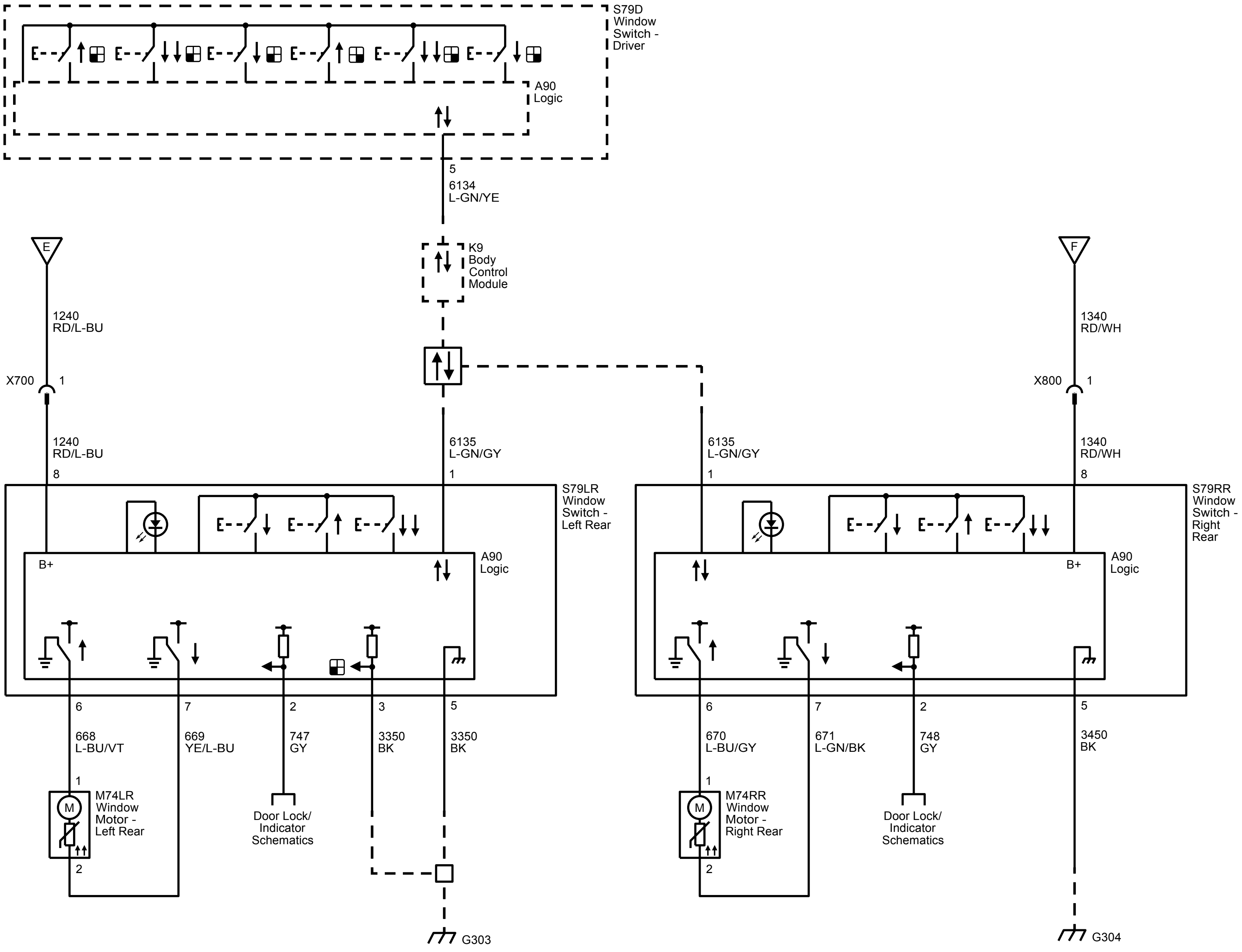
Moveable Window Schematics

Driver Door (A31)


B+
F8DA
5A
F42DA
30A
X51A
Fuse
Block -
Instrument
Panel
E
X1
16
25
1940
RD/VT
1240
RD/L-BU
1240
RD/L-BU
J213
1240
RD/L-BU
X500
16
1
1940
RD/VT
1240
RD/L-BU
2
M74D
Window
Motor -
Driver
B+
A90
Logic
M
K9
Body
Control
Module
4
6
3
5
7
1
6134
L-GN/YE
745
GY
1300
L-GN/WH
7628
L-GN/VT
1136
GY
3550
BK
J501
DL6/DL9
1940
RD/VT
1940
RD/VT
Outside
Rearview
Mirror
Schematics
6134
L-GN/YE
Door Lock/
Indicator
Schematics
4
5
6
2
3
S79D
Window
Switch -
Driver
B+
A90
Logic
1
3550
BK
G303

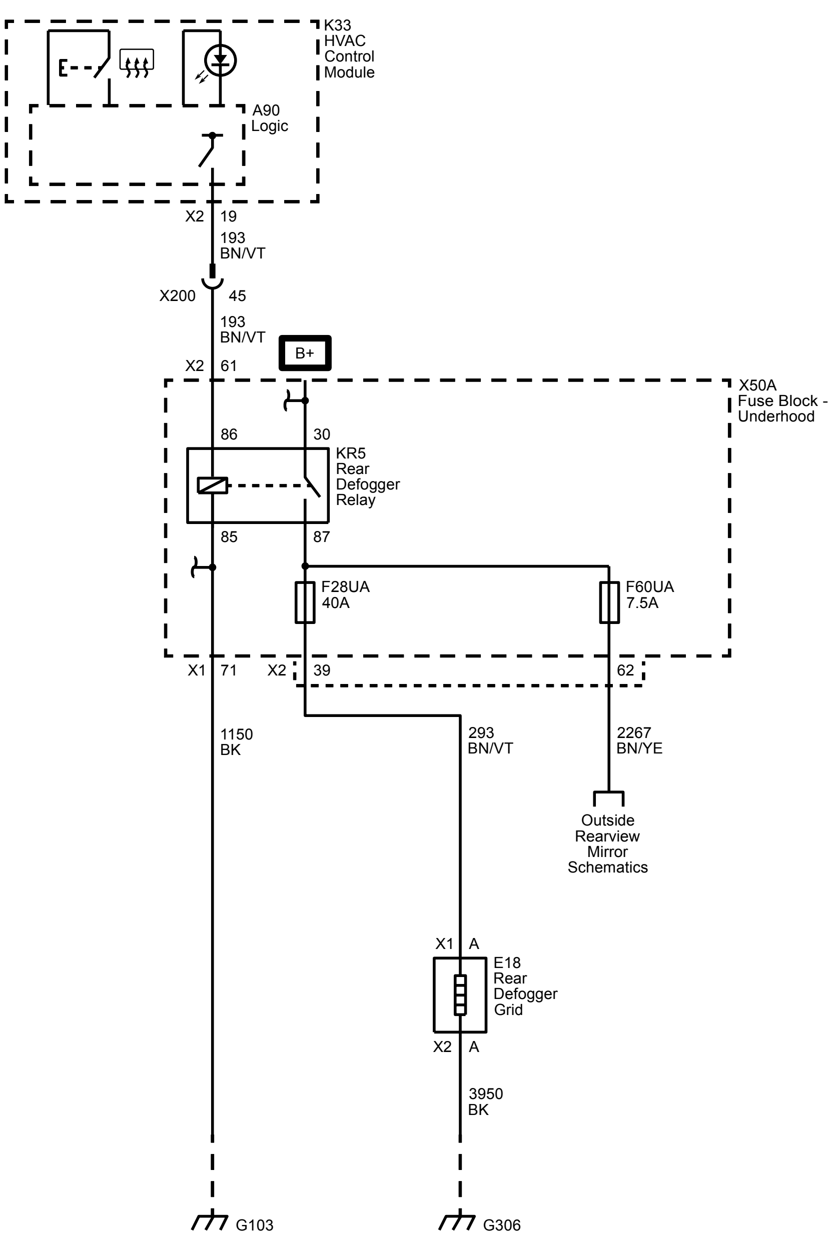
Passenger Door (A31)


B+
X51A
Fuse
Block -
Instrument
Panel
F4DA
30A
X1
35
1340
RD/WH
J300
1340
RD/WH
F
1340
RD/WH
X600
1
1340
RD/WH
X1
4
B+
S79D
Window
Switch -
Driver
A90
Logic
1
6134
L-GN/YE
5
S79P
Window
Switch -
Passenger
A90
Logic
X1
2
3
1
8
3387
L-GN/GY
3388
YE/L-BU
3650
BK
746
GY
Door Lock/
Indicator
Schematics
3550
BK
2
M74P
Window
Motor -
Passenger
M
1
G304
G303


S79D Window Switch - Driver
A90 Logic
5
6134 L-GN/YE
K9 Body Control Module
E
1240 RD/L-BU
X700
1
1240 RD/L-BU
8
F
1340 RD/WH
X800
1
1340 RD/WH
8
6135 L-GN/GY
1
6135 L-GN/GY
1
S79LR Window Switch - Left Rear
A90 Logic
B+
6
668 L-BU/VT
7
669 YE/L-BU
2
747 GY
3
3350 BK
5
3350 BK
1
M74LR Window Motor - Left Rear
M
2
Door Lock/ Indicator Schematics
G303
S79RR Window Switch - Right Rear
A90 Logic
B+
6
670 L-BU/GY
7
671 L-GN/BK
2
748 GY
5
3450 BK
1
M74RR Window Motor - Right Rear
M
2
Door Lock/ Indicator Schematics
G304

Defogger Schematics

Defogger


K33
HVAC
Control
Module
A90
Logic
X2 19
193
BN/VT
X200 45
193
BN/VT
B+
X2 61
X50A
Fuse Block -
Underhood
86
30
KR5
Rear
Defogger
Relay
85
87
F28UA
40A
F60UA
7.5A
X1 71
X2 39
62
1150
BK
293
BN/VT
2267
BN/YE
Outside
Rearview
Mirror
Schematics
X1 A
E18
Rear
Defogger
Grid
X2 A
3950
BK
G103
G306

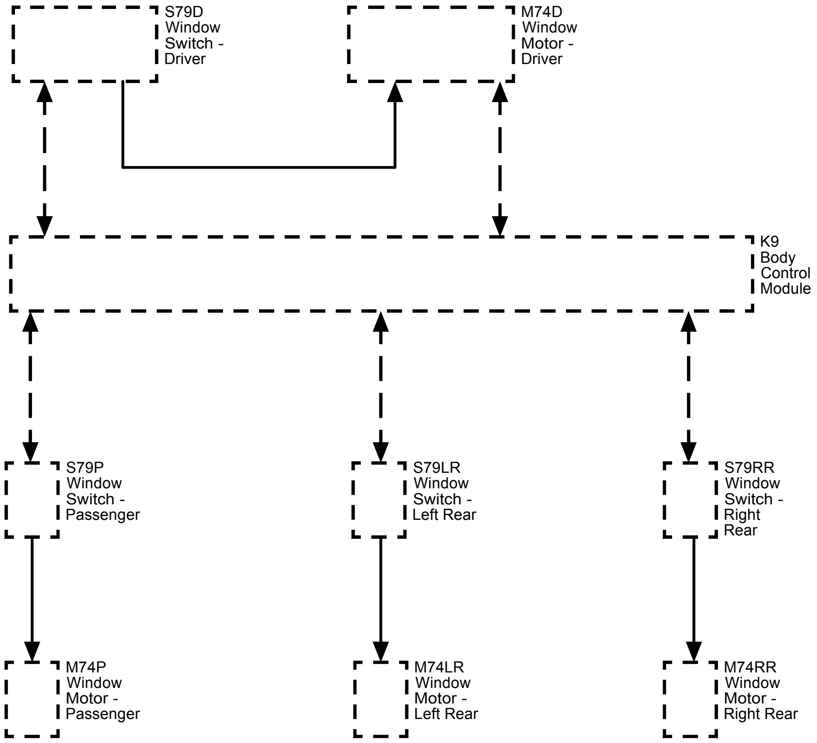
Description and Operation

Power Windows Description and Operation

Power Windows System Components

The power window system consists of the following components:

- Driver window switch
- Passenger window switch
- Left rear window switch
- Right rear window switch
- Right rear door latch
- Left rear door latch
- Window motors in each of the doors
- 30A Fuse
- Body control module (BCM)


S79D Window Switch - Driver
M74D Window Motor - Driver
K9 Body Control Module
S79P Window Switch - Passenger
S79LR Window Switch - Left Rear
S79RR Window Switch - Right Rear
M74P Window Motor - Passenger
M74LR Window Motor - Left Rear
M74RR Window Motor - Right Rear

Driver Express Up and Express Down Power Window Motor

The driver door contains a window motor is smart motor that will detect excessive resistance while performing the express up function and automatically reverse direction to prevent injury to any occupants that may become trapped between the closing window and the door frame. The automatic reverse safety feature can be overridden by pulling and holding the window switch.

The logic circuit within the window motor monitors the up, down and express signal circuits which are normally equal to B+ voltage. When a switch is used on the driver window switch, the contacts close causing a voltage drop within the appropriate signal circuit. The driver window motor will detect the voltage drop and will command the window to move in the direction requested.

Passenger, Left Rear and Right Rear Express Down Window Motors

For the passenger, right rear and left rear doors, when their window switch is pressed in the down position, battery positive voltage is applied to their respective window motor control circuit and ground to the other window motor control circuit causing that window to open. When the individual window switch is pulled in the up position, voltage and ground is applied to the window motor in the opposite direction causing that window to close. The return path to ground is supplied through the inactive control circuit being normally grounded through the window switch.

Each passenger and rear window switch communicates to the BCM by a serial data circuit. When the driver wishes to control the passenger, left rear or right rear window, the driver will use the appropriate switch on the driver window switch. When this switch is used, a serial data message is sent to the BCM requesting a window motor command, the BCM will then send a serial data message to the appropriate door window switch which will then command that window to move in the direction requested.

Lockout Switch Feature

The driver power window switch contains a window lockout switch, when the driver presses the window lockout switch, a serial data message is sent to the BCM which will send a disable command to the rear window motors, the rear window motors will then ignore all voltage drops in the window motor control circuits caused by using the rear window switches. The rear windows will still function normally from the switches on the driver window switch.

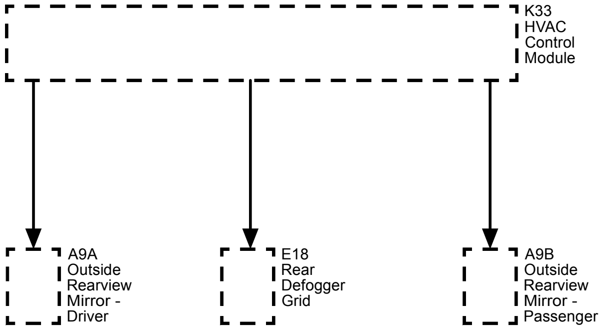
Rear Window Defogger Description and Operation

Rear Window Defogger System Components

The rear window defogger system consists of the following components:

- HVAC control module
- Rear defogger relay
- Rear defogger grid
- 40A fuse

Rear Window Defogger Block Diagram



Rear Window Defogger Operation

The rear defog control system utilizes a single zone backlight design, driven with a single relay configuration. Additionally, up to two outside rear view mirrors can be heated if equipped. A switch for the customer to control the system is provided within the HVAC control module, also included in the HVAC control module is an indicator to inform the customer with the current state of the system. The system is only operational when engine is running or during remote start.

Pressing the heated rear window switch on the HVAC control module causes the HVAC control module to provide voltage to the coil side of the rear defogger relay, this will energize the relay causing the relay switch contacts to close allowing B+ voltage to flow through the rear defogger grid control circuit to the rear defogger grid.

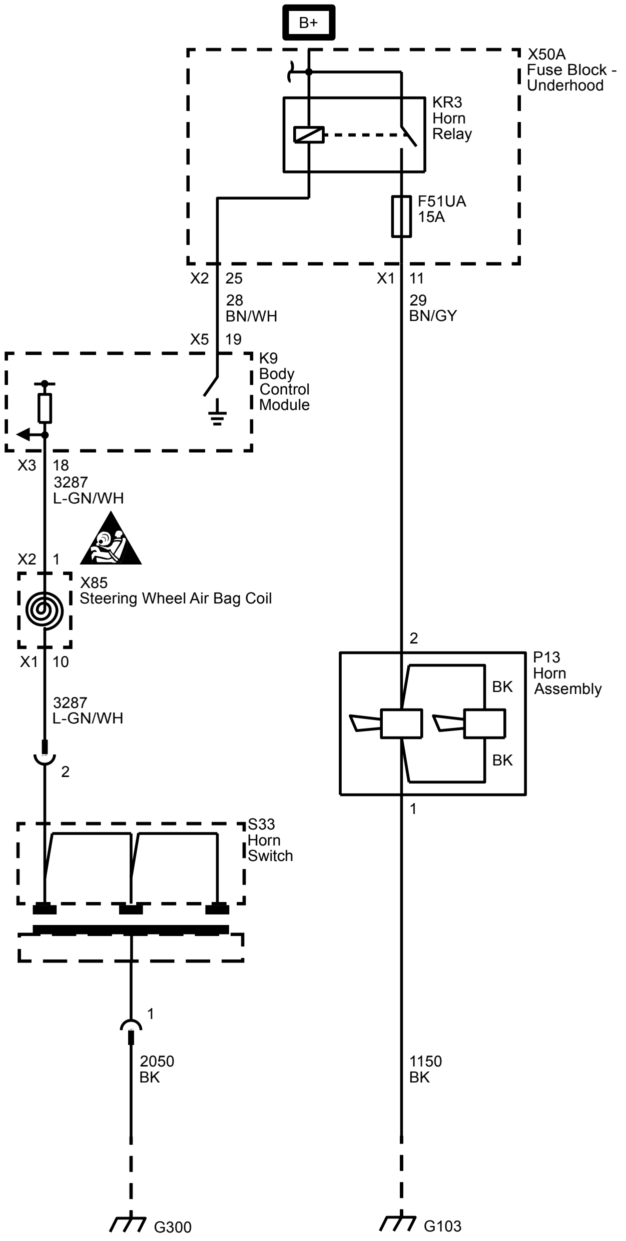
When the rear heated window switch is pressed and the engine is running, the rear defog control system will remain active for 10 minutes. After the initial cycle has lapsed, pressing the switch again will continue rear window defogger operation, but the cycle will only last 5 minutes.

Horns

Schematic and Routing Diagrams

Horn Schematics

Horns

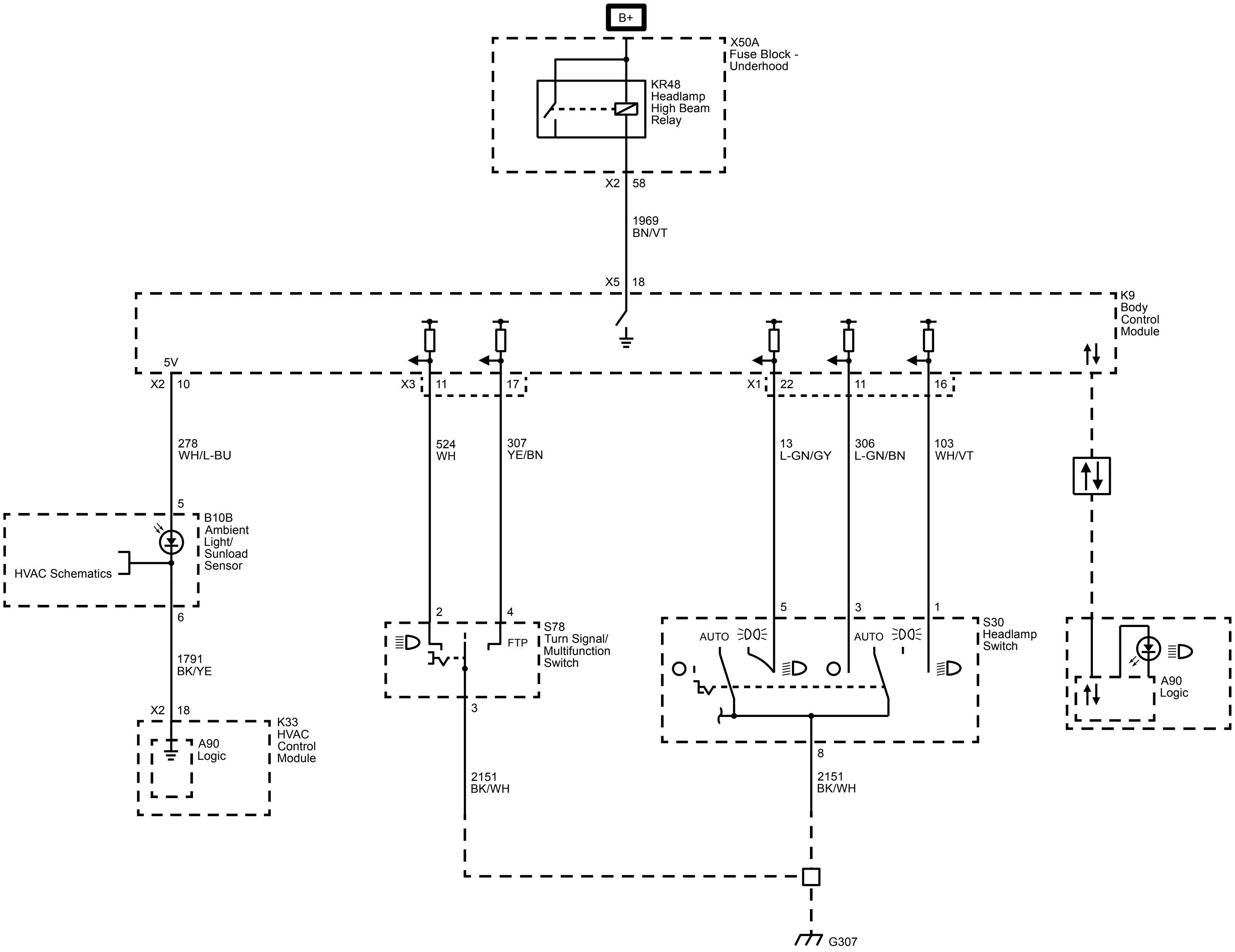

B+
X50A
Fuse Block - Underhood
KR3
Horn
Relay
F51UA
15A
X2
25
X1
11
28
BN/WH
29
BN/GY
X5
19
K9
Body
Control
Module
X3
18
3287
L-GN/WH
X2
1
X85
Steering Wheel Air Bag Coil
X1
10
3287
L-GN/WH
2
2
P13
Horn
Assembly
BK
BK
1
S33
Horn
Switch
1
2050
BK
1150
BK
G300
G103

Lighting

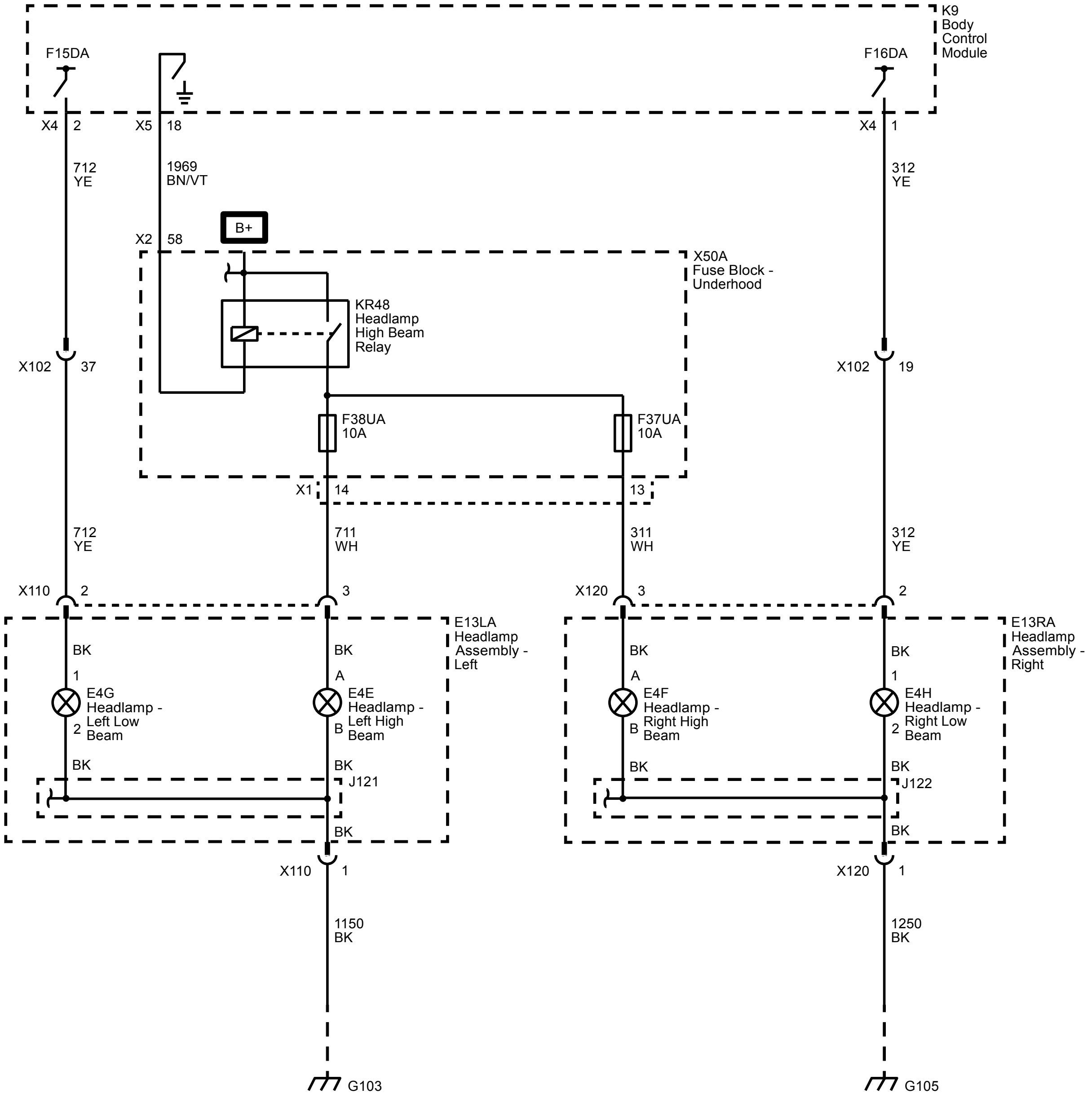
Schematic and Routing Diagrams

Headlights/Daytime Running Lights (DRL) Schematics

Controls

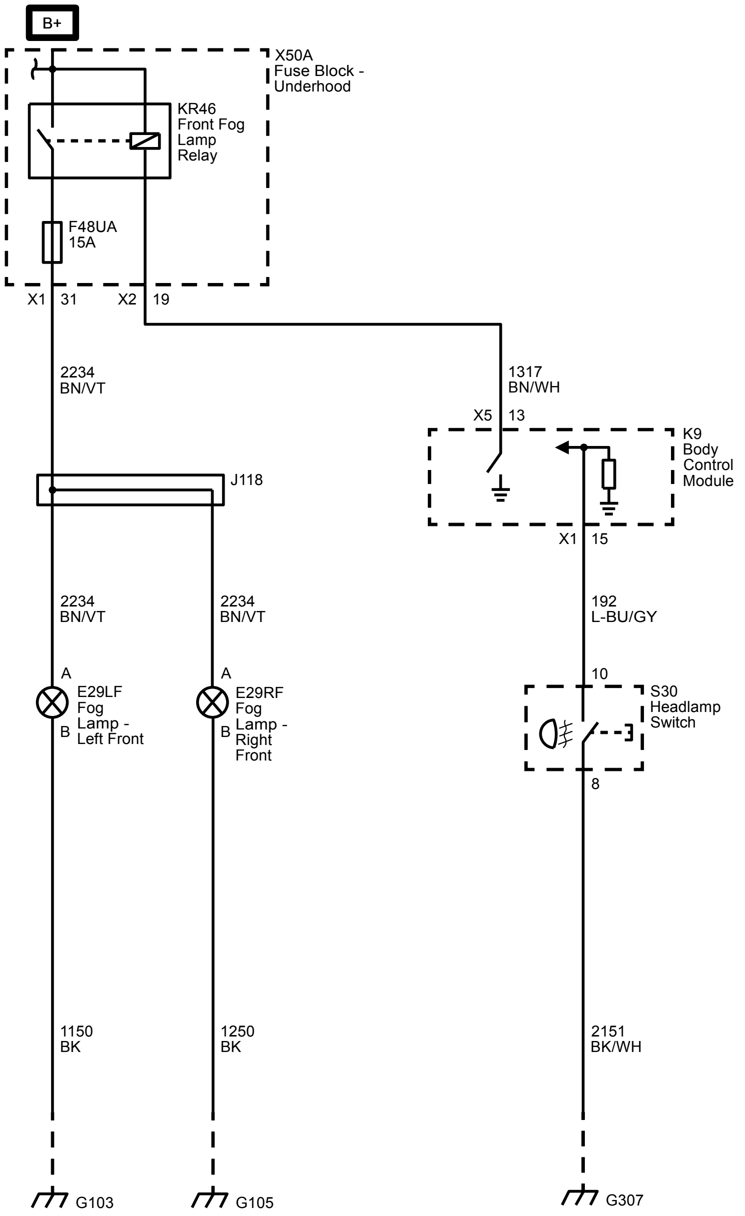

B+
X50A
Fuse Block - Underhood
KR48
Headlamp
High Beam
Relay
X2
58
1969
BN/VT
X5
18
K9
Body
Control
Module
5V
X2
10
X3
11
17
X1
22
11
16
278
WH/L-BU
524
WH
307
YE/BN
13
L-GN/GY
306
L-GN/BN
103
WH/VT
5
B10B
Ambient
Light/
Sunload
Sensor
HVAC Schematics
6
1791
BK/YE
X2
18
A90
Logic
K33
HVAC
Control
Module
2
4
S78
Turn Signal/
Multifunction
Switch
FTP
3
2151
BK/WH
5
3
1
AUTO
AUTO
S30
Headlamp
Switch
8
2151
BK/WH
G307
P16
Instrument
Cluster
A90
Logic

Headlamps


K9
Body
Control
Module
F15DA
F16DA
X4 2
X5 18
X4 1
712
YE
1969
BN/VT
312
YE
B+
X2 58
X50A
Fuse Block -
Underhood
KR48
Headlamp
High Beam
Relay
X102 37
X102 19
F38UA
10A
F37UA
10A
X1 14
13
712
YE
711
WH
311
WH
312
YE
X110 2
3
X120 3
2
E13LA
Headlamp
Assembly -
Left
E13RA
Headlamp
Assembly -
Right
BK
1
A
E4G
Headlamp -
Left Low
Beam
2
E4E
Headlamp -
Left High
Beam
B
E4F
Headlamp -
Right High
Beam
E4H
Headlamp -
Right Low
Beam
BK
J121
J122
BK
X110 1
X120 1
1150
BK
1250
BK
G103
G105

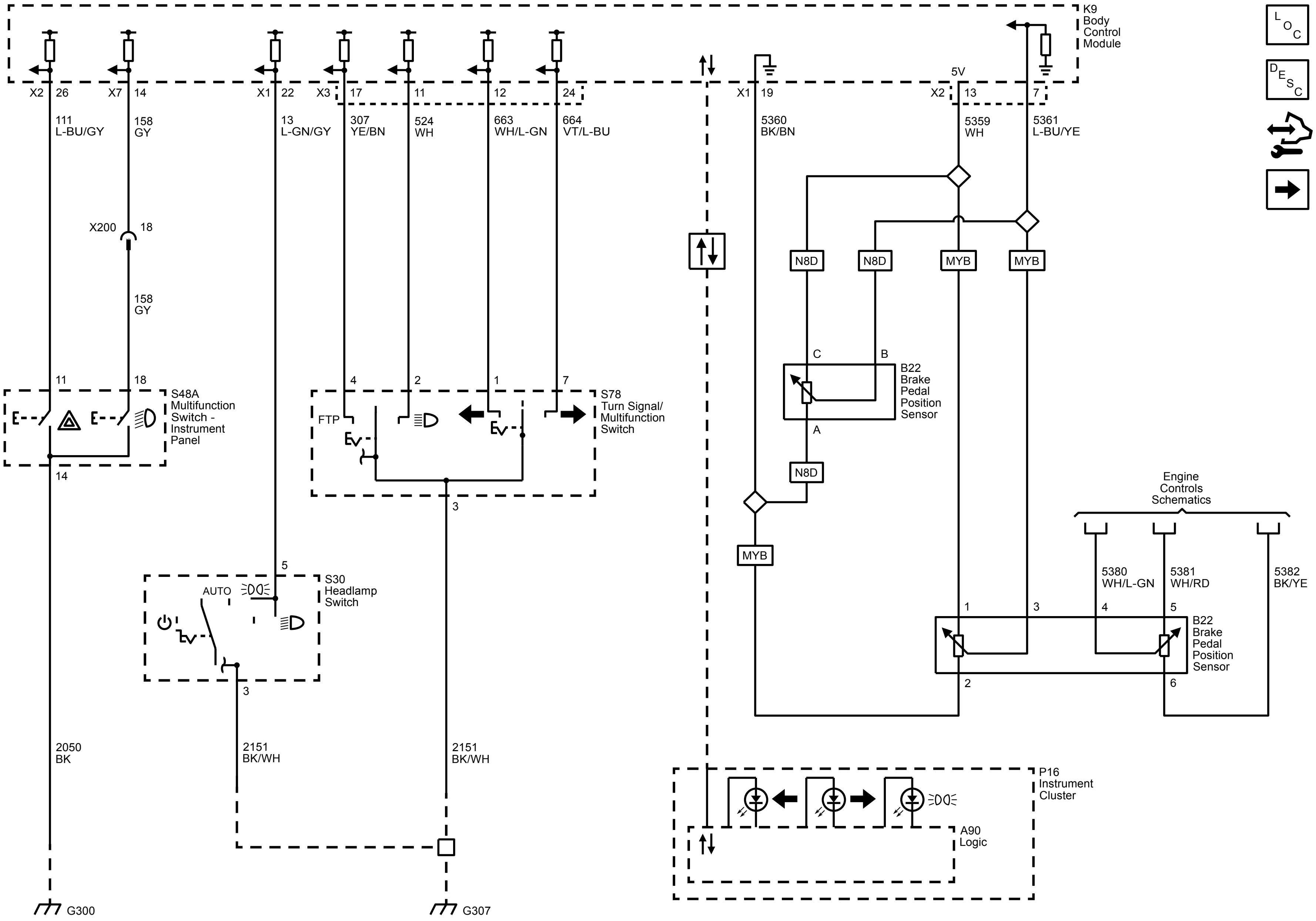
Fog Lights Schematics

Fog Lamps

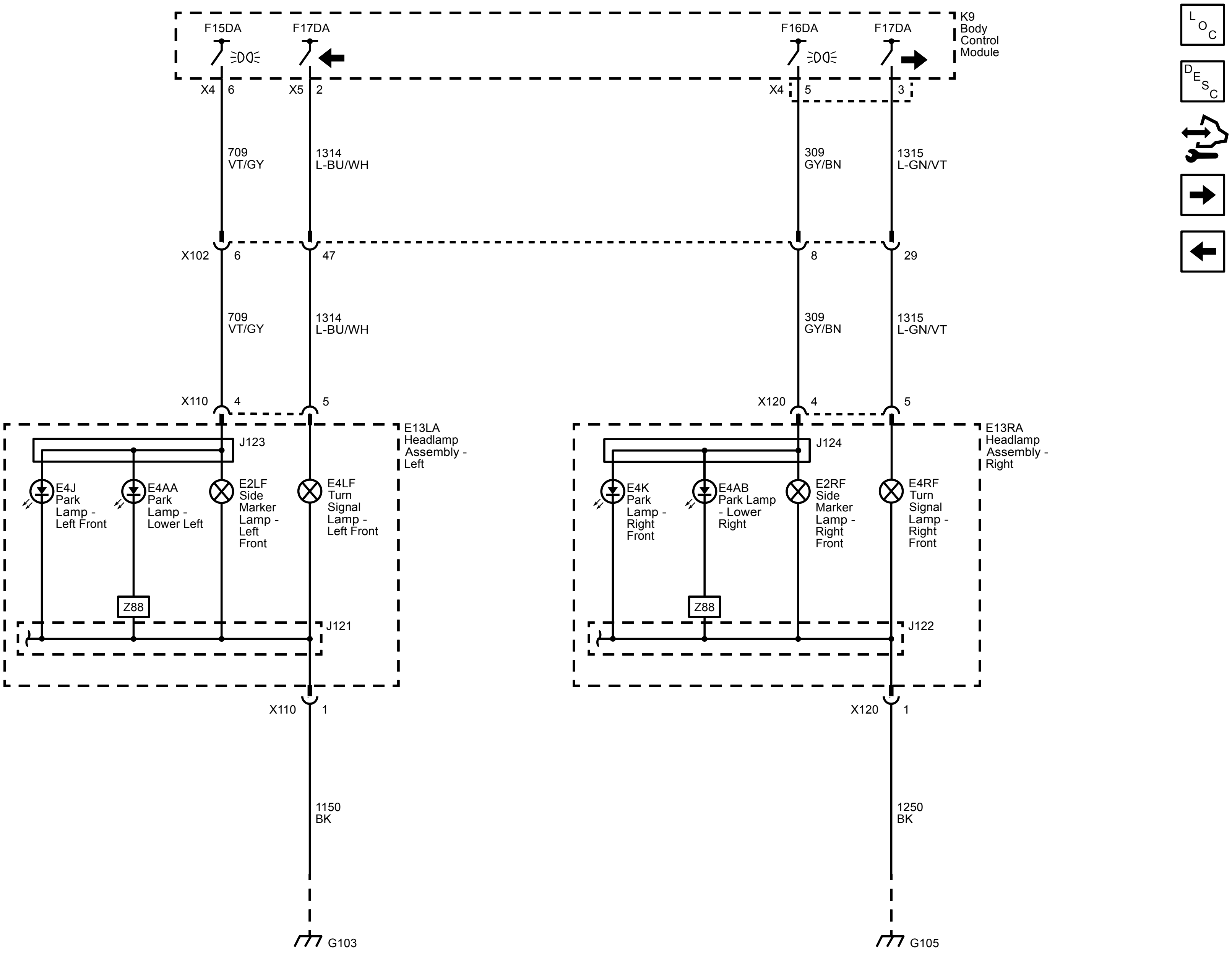

B+
X50A
Fuse Block -
Underhood
KR46
Front Fog
Lamp
Relay
F48UA
15A
X1 31
X2 19
2234
BN/VT
1317
BN/WH
X5 13
K9
Body
Control
Module
J118
X1 15
2234
BN/VT
2234
BN/VT
192
L-BU/GY
A
E29LF
Fog
Lamp -
Left Front
B
A
E29RF
Fog
Lamp -
Right
Front
B
10
S30
Headlamp
Switch
8
1150
BK
1250
BK
2151
BK/WH
G103
G105
G307

Exterior Lights Schematics

Controls and Indicators

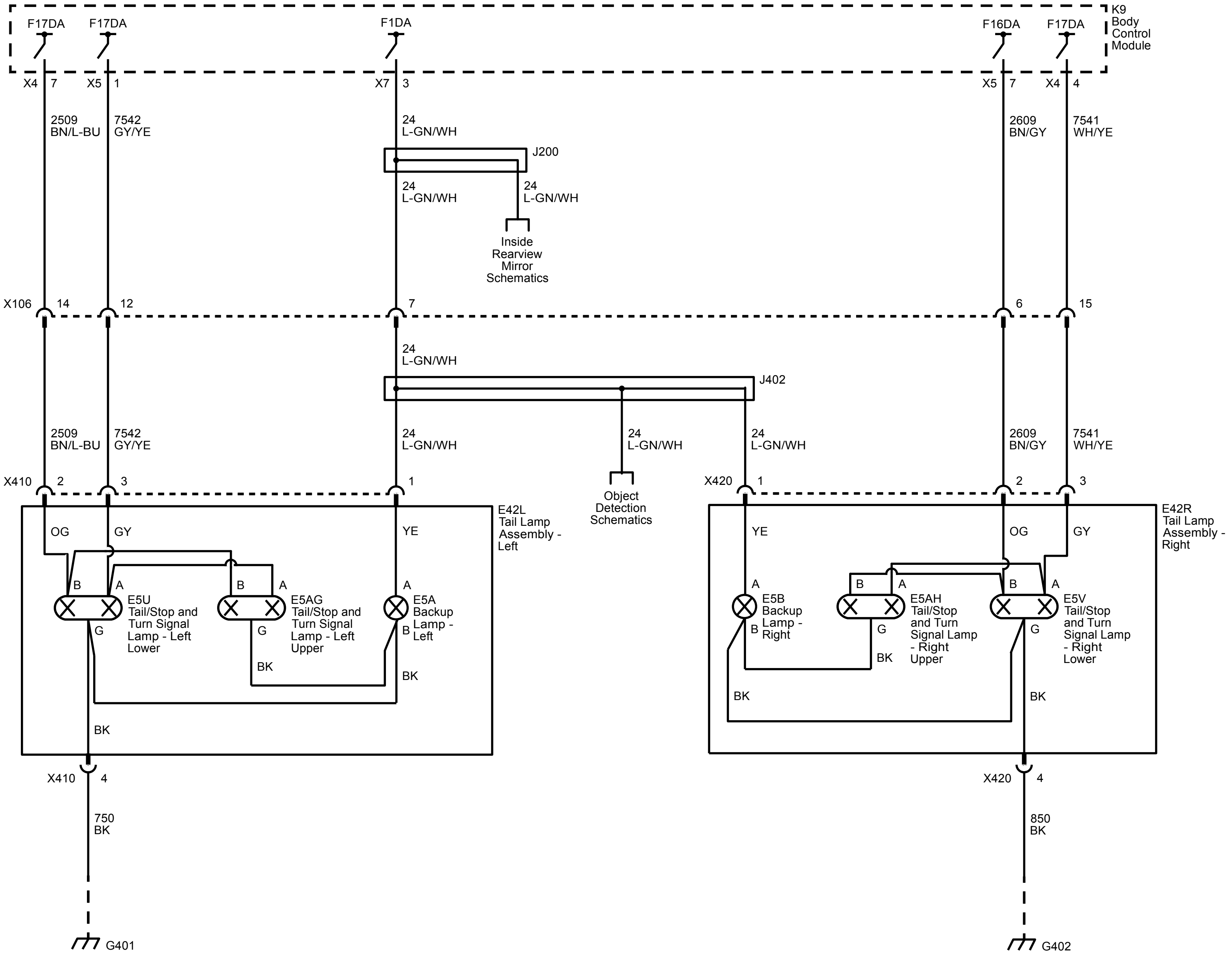

K9
Body
Control
Module
X2 26
X7 14
X1 22
X3 17
11
12
24
X1 19
5V
X2 13
7
111
L-BU/GY
158
GY
13
L-GN/GY
307
YE/BN
524
WH
663
WH/L-GN
664
VT/L-BU
5360
BK/BN
5359
WH
5361
L-BU/YE
X200 18
158
GY
N8D
N8D
MYB
MYB
C
B
B22
Brake
Pedal
Position
Sensor
A
N8D
MYB
11
18
S48A
Multifunction
Switch -
Instrument
Panel
14
4
2
1
7
S78
Turn Signal/
Multifunction
Switch
FTP
3
5
S30
Headlamp
Switch
AUTO
3
Engine
Controls
Schematics
5380
WH/L-GN
5381
WH/RD
5382
BK/YE
1
3
4
5
B22
Brake
Pedal
Position
Sensor
2
6
2050
BK
2151
BK/WH
2151
BK/WH
P16
Instrument
Cluster
A90
Logic
G300
G307
LOC
DESC

Park, Side Marker and Front Turn Lamps

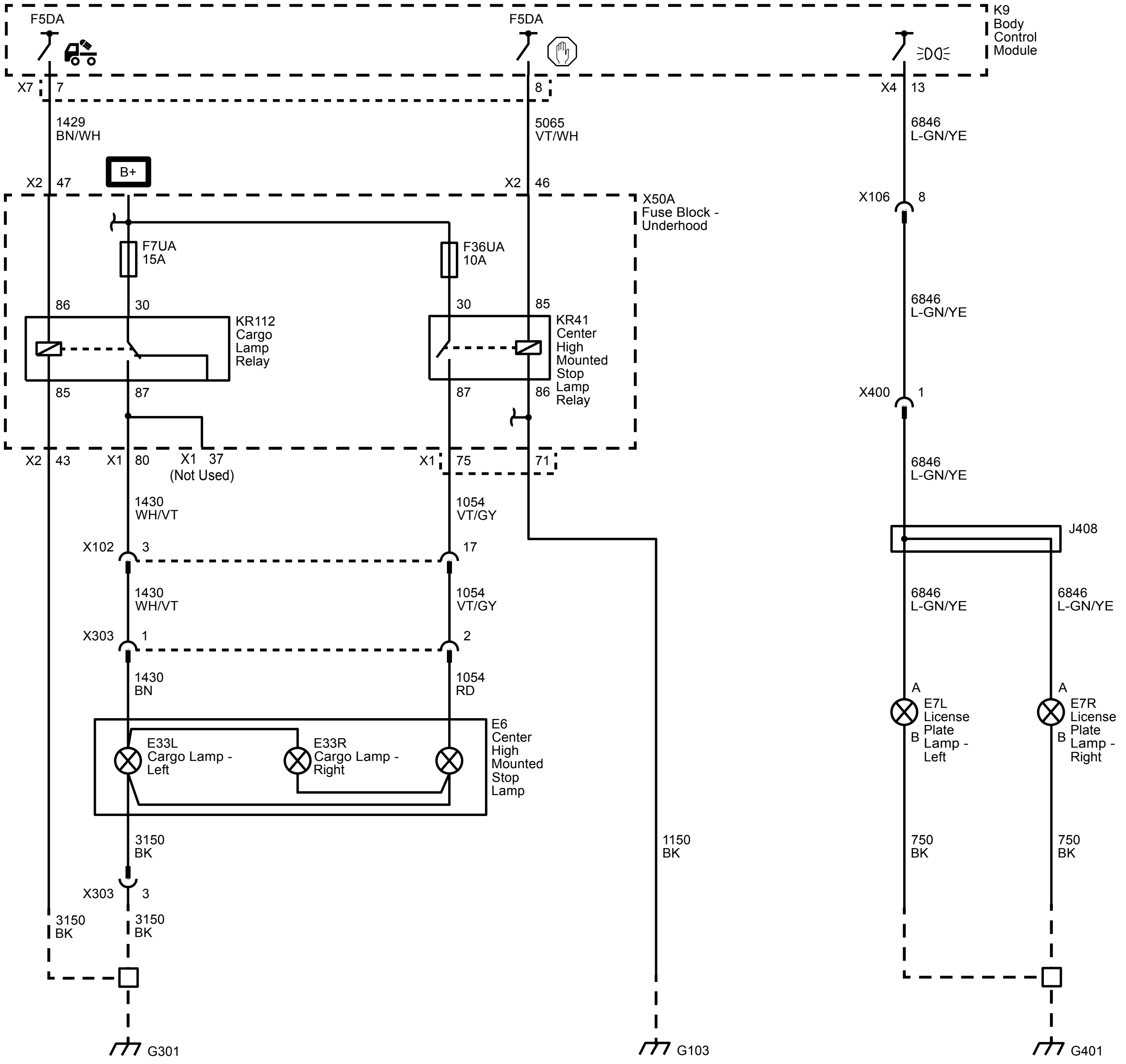


K9 Body Control Module
F15DA
F17DA
F16DA
F17DA
X4 6
X5 2
X4 5
3
709 VT/GY
1314 L-BU/WH
309 GY/BN
1315 L-GN/VT
X102 6
47
8
29
709 VT/GY
1314 L-BU/WH
309 GY/BN
1315 L-GN/VT
X110 4
5
X120 4
5
J123
E13LA Headlamp Assembly - Left
E4J Park Lamp - Left Front
E4AA Park Lamp - Lower Left
E2LF Side Marker Lamp - Left Front
E4LF Turn Signal Lamp - Left Front
Z88
J121
J124
E13RA Headlamp Assembly - Right
E4K Park Lamp - Right Front
E4AB Park Lamp - Lower Right
E2RF Side Marker Lamp - Right Front
E4RF Turn Signal Lamp - Right Front
Z88
J122
X110 1
X120 1
1150 BK
1250 BK
G103
G105
L O C
D E S C

Tail Lamps

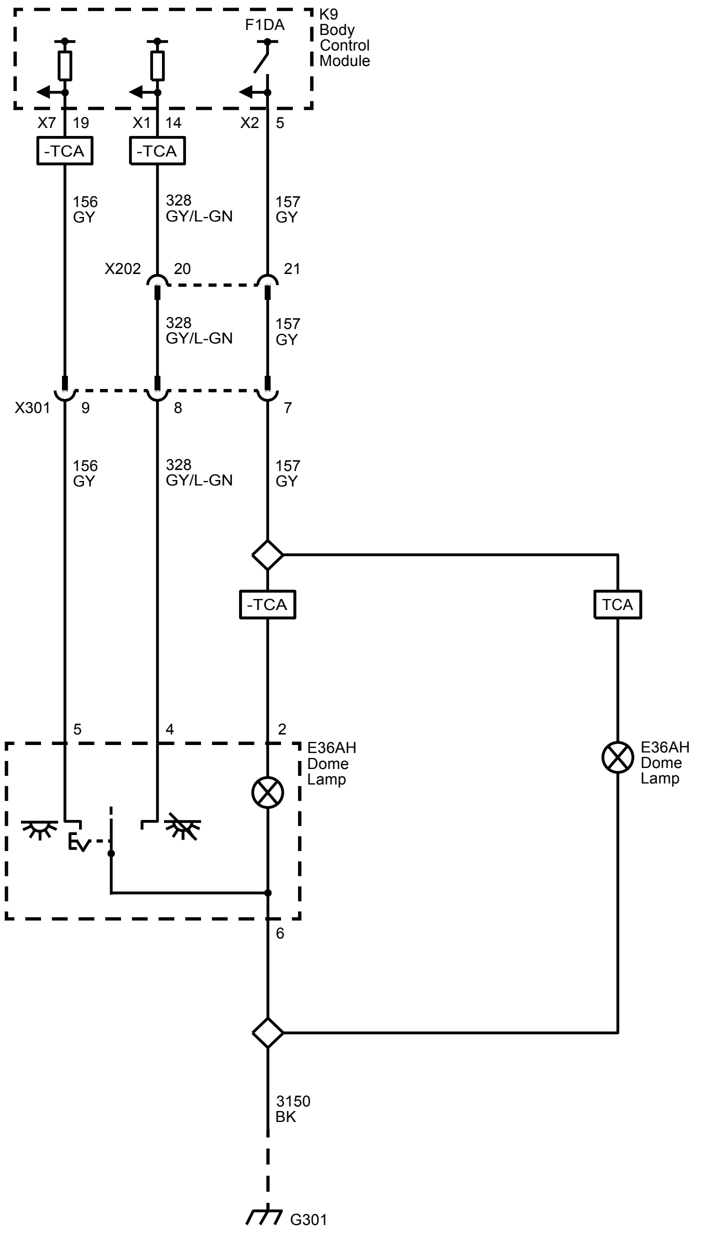

F17DA
F17DA
F1DA
F16DA
F17DA
K9
Body
Control
Module
X4 7
X5 1
X7 3
X5 7
X4 4
2509
BN/L-BU
7542
GY/YE
24
L-GN/WH
2609
BN/GY
7541
WH/YE
J200
24
L-GN/WH
24
L-GN/WH
Inside
Rearview
Mirror
Schematics
X106
14
12
7
6
15
24
L-GN/WH
J402
2509
BN/L-BU
7542
GY/YE
24
L-GN/WH
24
L-GN/WH
24
L-GN/WH
2609
BN/GY
7541
WH/YE
Object
Detection
Schematics
X410 2
3
1
X420 1
2
3
OG
GY
YE
E42L
Tail Lamp
Assembly -
Left
YE
OG
GY
E42R
Tail Lamp
Assembly -
Right
B
A
E5U
Tail/Stop and
Turn Signal
Lamp - Left
Lower
G
B
A
E5AG
Tail/Stop and
Turn Signal
Lamp - Left
Upper
G
BK
A
E5A
Backup
Lamp -
Left
B
BK
BK
A
E5B
Backup
Lamp -
Right
B
B
A
E5AH
Tail/Stop
and Turn
Signal Lamp
- Right
Upper
G
BK
B
A
E5V
Tail/Stop
and Turn
Signal Lamp
- Right
Lower
G
BK
BK
X410
4
750
BK
G401
X420
4
850
BK
G402

CHMSL, Cargo and License Plate Lamps



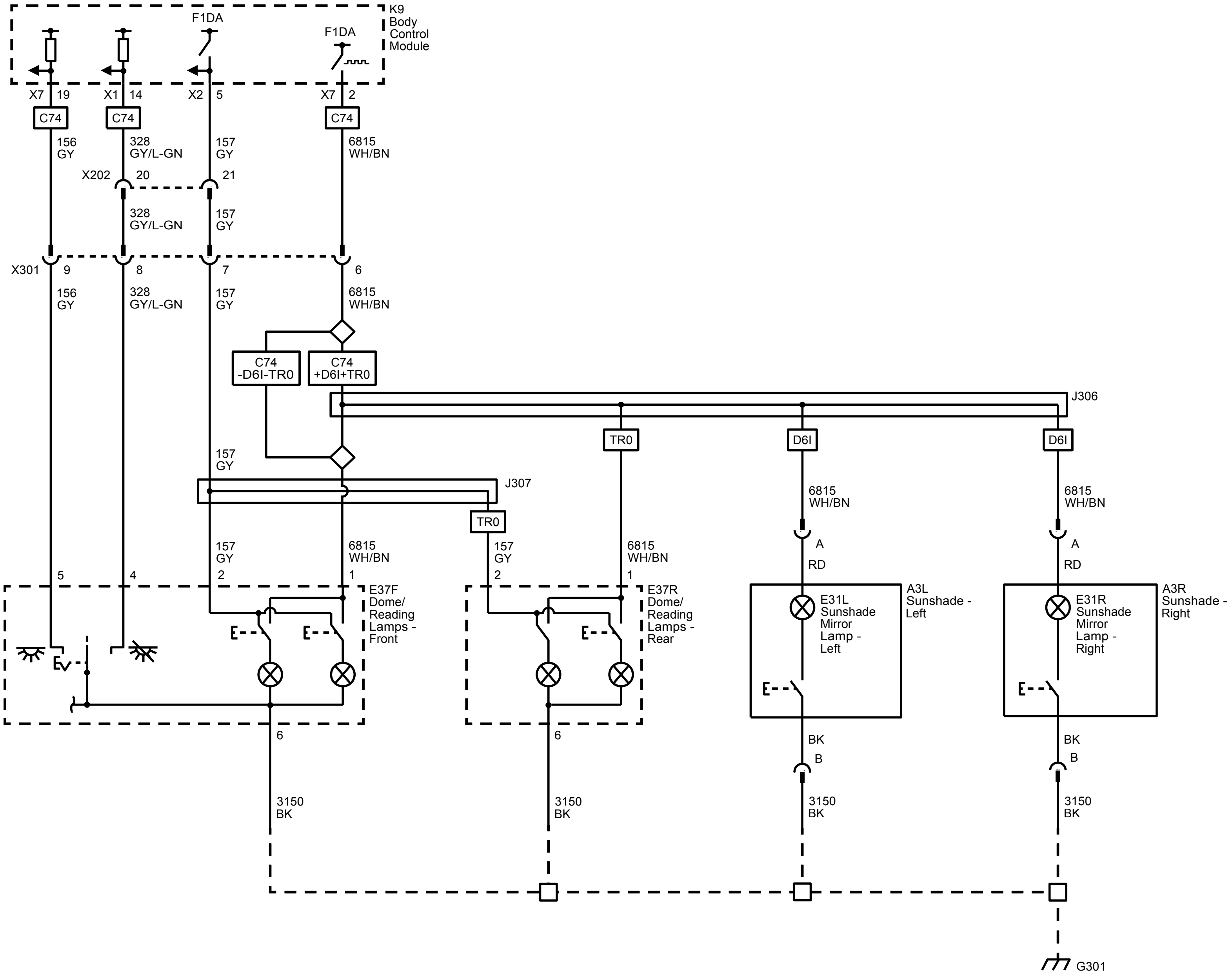
F5DA
F5DA
K9 Body Control Module
X7 7
8
X4 13
1429 BN/WH
5065 VT/WH
6846 L-GN/YE
B+
X2 47
X2 46
X50A Fuse Block - Underhood
X106 8
F7UA 15A
F36UA 10A
6846 L-GN/YE
86
30
KR112 Cargo Lamp Relay
30
85
KR41 Center High Mounted Stop Lamp Relay
85
87
87
86
X400 1
X2 43
X1 80
X1 37 (Not Used)
X1 75
71
6846 L-GN/YE
1430 WH/VT
1054 VT/GY
J408
X102 3
17
1430 WH/VT
1054 VT/GY
6846 L-GN/YE
6846 L-GN/YE
X303 1
2
1430 BN
1054 RD
A
A
E6 Center High Mounted Stop Lamp
E33L Cargo Lamp - Left
E33R Cargo Lamp - Right
E7L License Plate Lamp - Left
B
E7R License Plate Lamp - Right
B
3150 BK
1150 BK
750 BK
750 BK
X303 3
3150 BK
3150 BK
G301
G103
G401

Dome Lamps (Except C74)

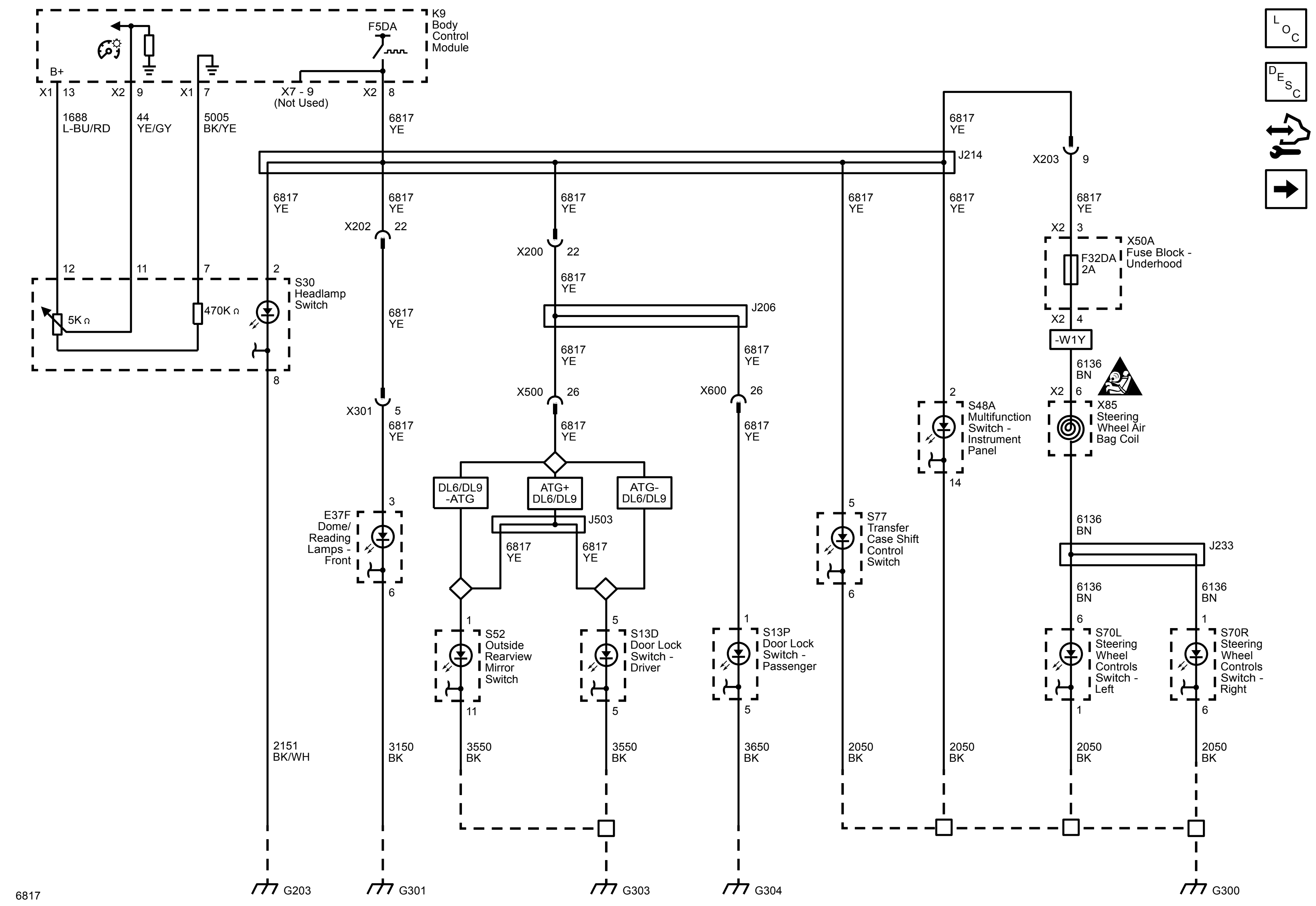

K9
Body
Control
Module
F1DA
X7
19
X1
14
X2
5
-TCA
-TCA
156
GY
328
GY/L-GN
157
GY
X202
20
21
328
GY/L-GN
157
GY
X301
9
8
7
156
GY
328
GY/L-GN
157
GY
-TCA
TCA
5
4
2
E36AH
Dome
Lamp
E36AH
Dome
Lamp
6
3150
BK
G301

LOC
DESC

Dome/Reading, and Sunshades Lamps (C74/TR0/D6I)

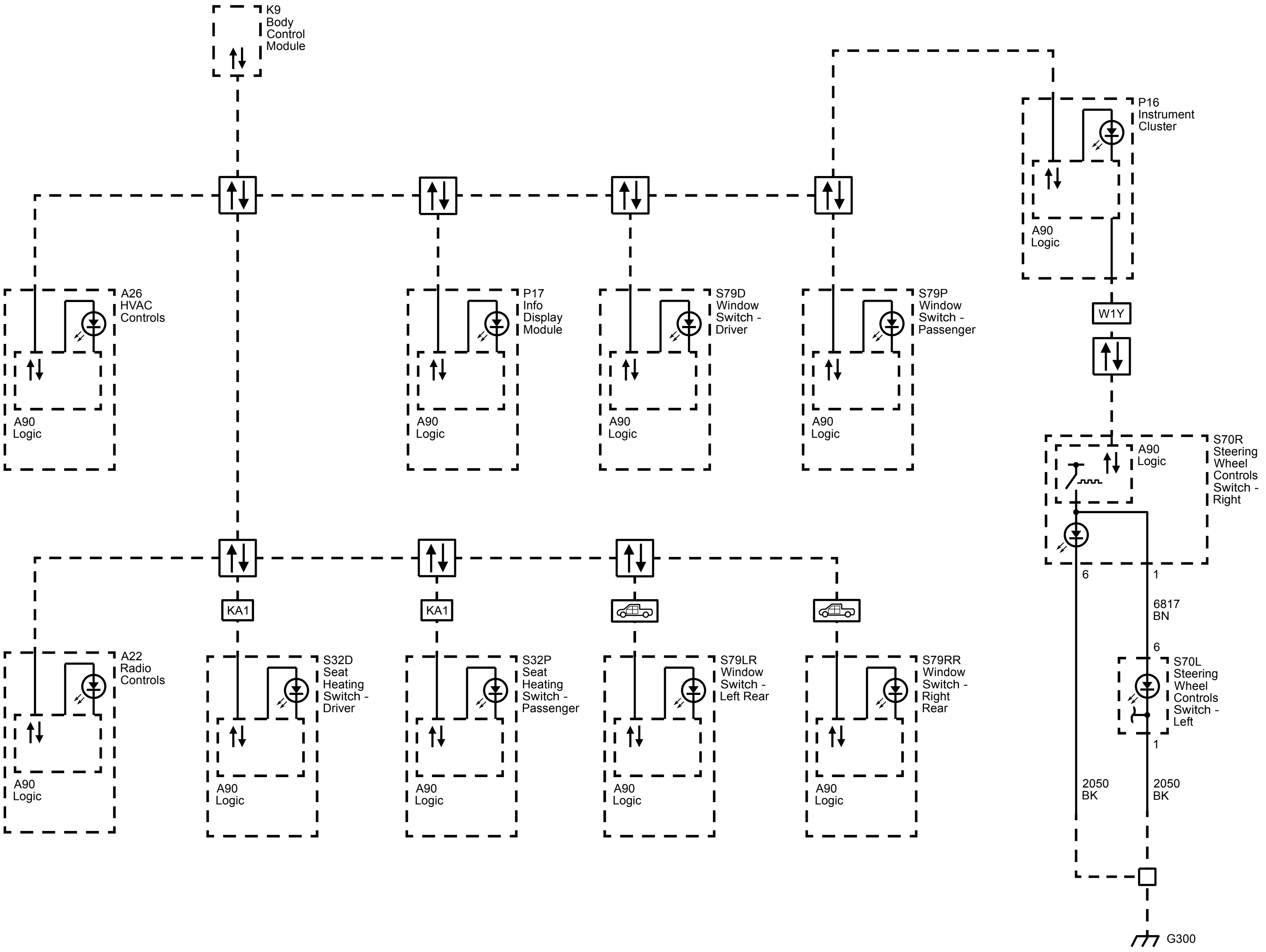

K9
Body
Control
Module
F1DA
F1DA
X7 19
X1 14
X2 5
X7 2
C74
C74
C74
156
GY
328
GY/L-GN
157
GY
6815
WH/BN
X202
20
21
328
GY/L-GN
157
GY
X301
9
8
7
6
156
GY
328
GY/L-GN
157
GY
6815
WH/BN
C74
-D6I-TR0
C74
+D6I+TR0
J306
TR0
D6I
D6I
157
GY
J307
TR0
6815
WH/BN
6815
WH/BN
A
RD
A
RD
157
GY
6815
WH/BN
157
GY
6815
WH/BN
5
4
2
1
2
1
E37F
Dome/
Reading
Lamps -
Front
E37R
Dome/
Reading
Lamps -
Rear
E31L
Sunshade
Mirror
Lamp -
Left
A3L
Sunshade -
Left
E31R
Sunshade
Mirror
Lamp -
Right
A3R
Sunshade -
Right
6
6
BK
B
BK
B
3150
BK
3150
BK
3150
BK
3150
BK
G301

Dimming Control (1 of 3)

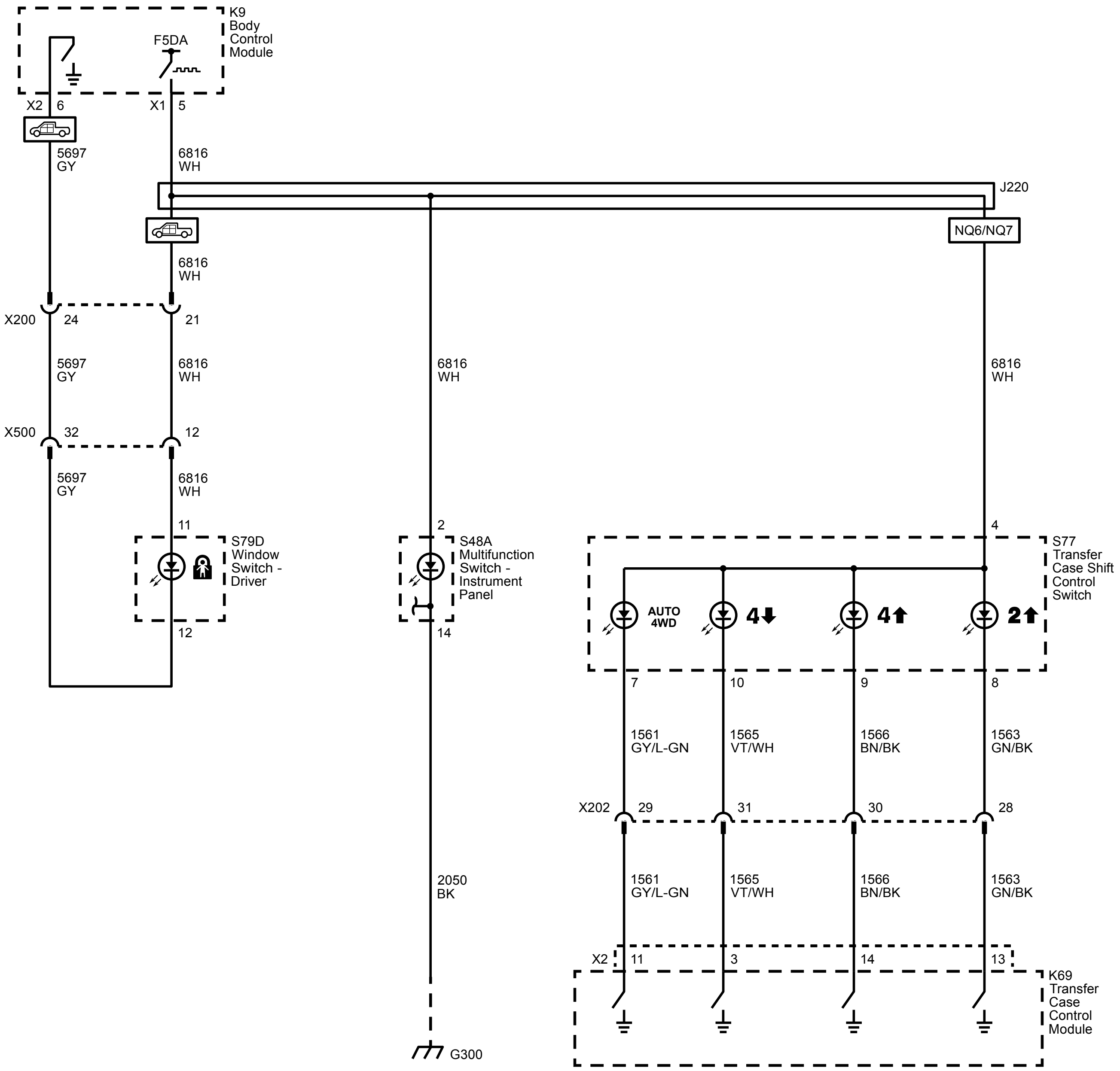

K9 Body Control Module
F5DA
B+
X1 13
X2 9
X1 7
X7 - 9 (Not Used)
X2 8
1688 L-BU/RD
44 YE/GY
5005 BK/YE
6817 YE
J214
X203 9
X202 22
X200 22
J206
X2 3
X50A Fuse Block - Underhood
F32DA 2A
X2 4
-W1Y
6136 BN
X2 6
X85 Steering Wheel Air Bag Coil
12
11
7
2
S30 Headlamp Switch
5K Ω
470K Ω
8
X500 26
X600 26
X301 5
DL6/DL9 -ATG
ATG+ DL6/DL9
ATG- DL6/DL9
J503
E37F Dome/ Reading Lamps - Front
3
6
S48A Multifunction Switch - Instrument Panel
2
14
S77 Transfer Case Shift Control Switch
5
6
J233
S52 Outside Rearview Mirror Switch
1
11
S13D Door Lock Switch - Driver
5
5
S13P Door Lock Switch - Passenger
1
5
S70L Steering Wheel Controls Switch - Left
6
1
S70R Steering Wheel Controls Switch - Right
1
6
2151 BK/WH
3150 BK
3550 BK
3550 BK
3650 BK
2050 BK
2050 BK
2050 BK
2050 BK
G203
G301
G303
G304
G300
6817

]

Dimming Control (2 of 3)


K9
Body
Control
Module
P16
Instrument
Cluster
A90
Logic
A26
HVAC
Controls
A90
Logic
P17
Info
Display
Module
A90
Logic
S79D
Window
Switch -
Driver
A90
Logic
S79P
Window
Switch -
Passenger
A90
Logic
W1Y
A90
Logic
S70R
Steering
Wheel
Controls
Switch -
Right
6
1
6817
BN
6
S70L
Steering
Wheel
Controls
Switch -
Left
1
KA1
KA1
A22
Radio
Controls
A90
Logic
S32D
Seat
Heating
Switch -
Driver
A90
Logic
S32P
Seat
Heating
Switch -
Passenger
A90
Logic
S79LR
Window
Switch -
Left Rear
A90
Logic
S79RR
Window
Switch -
Right
Rear
A90
Logic
2050
BK
2050
BK
G300

Dimming Control (3 of 3)


K9
Body
Control
Module
F5DA
X2
6
X1
5
5697
GY
6816
WH
J220
NQ6/NQ7
6816
WH
X200
24
21
5697
GY
6816
WH
6816
WH
6816
WH
X500
32
12
5697
GY
6816
WH
11
S79D
Window
Switch -
Driver
12
2
S48A
Multifunction
Switch -
Instrument
Panel
14
4
S77
Transfer
Case Shift
Control
Switch
AUTO
4WD
4⬇
4⬆
2⬆
7
10
9
8
1561
GY/L-GN
1565
VT/WH
1566
BN/BK
1563
GN/BK
X202
29
31
30
28
2050
BK
1561
GY/L-GN
1565
VT/WH
1566
BN/BK
1563
GN/BK
X2
11
3
14
13
K69
Transfer
Case
Control
Module
G300

Description and Operation

Exterior Lighting Systems Description and Operation

The exterior lighting system consist of the following lamps:

- Backup lamps
- Daytime running lamps
- Hazard warning lamps
- Headlamps
- Park, tail, license, and marker lamps
- Stop lamps
- Turn signal lamps
- Trailer lighting

Low Beam Headlamps

The headlamps may be turned ON in 3 different ways:

- When the headlamp switch is placed in the ON position, for normal operation
- When the headlamp switch is placed in the AUTO position, for automatic lamp control
- When the headlamp switch is placed in the AUTO position, with the windshield wipers ON in daylight conditions, after a 6 second delay

The BCM will also command the low beam headlamps ON during daylight conditions when the following conditions are met:

- Headlamp switch in the AUTO position
- Windshield wipers ON
- Vehicle in any gear but PARK

When the BCM commands the low beam headlamps ON, the vehicle operator will notice the interior backlighting for the instrument cluster and the various switches with backlighting control will dim to the level of brightness selected by the instrument panel dimmer switch.

The body control module (BCM) monitors three signal circuits from the headlamp switch. When the headlamp switch is in the AUTO position, all three signal circuits are open. When placed in the AUTO position, the BCM monitors inputs from the ambient light sensor to determine if headlamps are required or if daytime running lamps will be activated based on outside lighting conditions. When the headlamp switch is placed in the OFF position, the headlamp switch headlamps OFF signal circuit is grounded, indicating to the BCM that the exterior lamps should be turned OFF. With the headlamp switch in the PARK position, the headlamp switch park lamps ON signal circuit is grounded, indicating that the park lamps have been requested. When the headlamp switch is placed in the HEADLAMP position, both the headlamp switch park lamps ON signal circuit and the headlamp switch headlamps ON signal circuit are grounded. The BCM responds to the inputs by illuminating the park lamps and headlamps. When the low beam headlamps are requested, the BCM applies B+ to both low beam headlamp control circuits illuminating the low beam headlamps.

High Beam Headlamps

When the low beam headlamps are ON and the turn signal/multifunction switch is placed in the high beam position, ground is applied to the BCM through the high beam signal circuit. The BCM responds to the high beam request by applying ground to the high beam relay control circuit which energizes the high beam relay. With the high beam relay energized, the switch contacts close allowing battery voltage to flow through the left and right high beam fuses to the high beam control circuits illuminating the left and right high beam headlamps.

Daytime Running Lamps

The daytime running lamps will illuminate continuously when the following conditions are met:

- The ignition is in the RUN or CRANK position
- The shift lever is out of the PARK position for vehicles equipped with automatic transmissions or the parking brake is released for vehicles with manual transmissions
- The low and high beam headlamps are OFF

The ambient light sensor is used to monitor outside lighting conditions. The ambient light sensor provides a voltage signal that will vary between 0.2 and 4.9 volts depending on outside lighting conditions. The body control module (BCM) provides a 5 V reference signal to the ambient light sensor and the HVAC control module provides a low reference ground. The BCM monitors the ambient light sensor signal circuit to determine if outside lighting conditions are correct for either daytime running lights or automatic lamp control when the headlamp switch is in the AUTO position. In daylight conditions the BCM will command the low beam headlamps ON. Any function or condition that turns on the headlamps will cancel daytime running lamps operation.

Flash to Pass (FTP)

When the turn signal/multifunction switch is momentarily placed in the flash to pass (FTP) position, ground is applied to the turn signal/multifunction switch. The turn signal/multifunction switch applies ground to the body control module (BCM) through the FTP switch signal circuit. The BCM responds to the FTP request by applying ground to the high beam relay control circuit. This energizes the high beam relay, closing the switch side contacts of the high beam relay, applying battery voltage to the left and right high beam fuses. Battery voltage is applied from the high beam fuses through the high beam control circuit to the high beam headlamp assemblies. This causes the high beam headlamps to illuminate at full brightness momentarily.

Hazard Lamps

The hazard flashers may be activated in any power mode. The hazard switch signal circuit is momentarily grounded when the hazard switch is pressed. The body control module (BCM) responds to the hazard switch signal input by supplying battery voltage to all four turn signal lamps in an ON and OFF duty cycle. When the hazard switch is activated, the BCM sends a serial data message to the instrument panel cluster requesting both turn signal indicators to be cycled ON and OFF.

The instrument panel dimmer switch controls the brightness of the interior backlighting components. When the instrument panel dimmer switch is placed in a desired brightness position, the body control module (BCM) receives a signal from the instrument panel dimmer switch and responds by applying a pulse width modulated (PWM) voltage to the hazard switch light emitting diode (LED) backlighting control circuit illuminating the LED to the desired level of brightness.

Park, Tail, and License Lamps

When the headlamp switch is placed in the HEAD or PARK position, ground is applied to the park lamp switch ON signal circuit to the body control module (BCM). The BCM responds by applying voltage to the park lamps, tail lamps, and license lamps control circuits illuminating the park, tail, and license lamps.

Stop Lamps

The brake pedal position sensor is used to sense the action of the driver application of the brake pedal. The brake pedal position sensor provides an analog voltage signal that will increase as the brake pedal is applied. The body control module (BCM) provides a low reference signal and a 5 V reference voltage to the brake pedal position sensor. When the variable signal reaches a voltage threshold indicating the brakes have been applied, the BCM will apply battery voltage to the left and right stop lamp control circuits as well as the center high mounted stop lamp control circuit illuminating the left and right stop lamps and the center high mounted stop lamp.

Turn Signal Lamps

Ground is applied at all times to the turn signal/multifunction switch. The turn signal lamps may only be activated with the ignition switch in the ON or START positions. When the turn signal/multifunction switch is placed in either the TURN RIGHT or TURN LEFT position, ground is applied to the body control module (BCM) through either the right turn or left turn signal switch signal circuit. The BCM responds to the turn signal switch input by applying a pulsating voltage to the front and rear turn signal lamps through there respective control circuits. When a turn signal request is received by the BCM, a serial data message is sent to the instrument cluster requesting the respective turn signal indicator be pulsed ON and OFF.

Backup Lamps

Automatic Transmission

With the engine ON and the transmission in the REVERSE position, the transmission control module (TCM) sends a serial data message to the body control module (BCM). The message indicates that the gear selector is in the REVERSE position. The BCM applies battery voltage to the backup lamps control circuit illuminating the backup lamps. Once the driver moves the gear selector out of the REVERSE position, a message is sent by the TCM via serial data requesting the BCM to remove battery voltage from the backup lamps control circuit. The engine must be ON for the backup lamps to operate.

Manual Transmission

The engine control module (ECM) provides a signal circuit to the backup lamp switch which is permanently grounded. With the engine running and the transmission in the reverse position, the backup lamp switch signal circuit is pulled low and the ECM responds by sending a serial data message to the body control module (BCM). The message indicates that the gear selector is in the reverse position. The BCM applies battery voltage to the backup lamps control circuit illuminating the backup lamps. Once the driver moves the gear selector out of the reverse position, a message is sent by the ECM via serial data requesting the BCM to remove battery voltage from the backup lamps control circuit. The engine must be running for the backup lamps to operate. The engine must be running for the backup lamps to operate.

Trailer Lighting

Backup Lamps

For backup lamp operation, the trailer backup lamps relay is supplied with battery voltage at all times. With the engine running and the transmission in the reverse position, the transmission control module (TCM) sends a serial data message to the body control module (BCM). The message indicates that the gear selector is in the reverse position. The BCM responds to the backup lamp request by energizing the trailer backup lamps relay by applying battery voltage to the trailer backup lamps relay control circuit. When the trailer backup lamps relay is energized, the relay switch contacts close and battery voltage is applied through the backup lamp fuse to the trailer backup lamps control circuit which illuminates the trailer backup lamps. Once the driver moves the gear selector out of the reverse position, a message is sent by the TCM via serial data requesting the BCM to remove battery voltage from the trailer backup lamps relay control circuit.

Park Lamps

For trailer park lamp operation, the trailer park lamps relay is supplied with battery voltage at all times. When the headlamp switch is placed in the HEAD or PARK position, ground is applied to the park lamp switch ON signal circuit to the body control module (BCM). The BCM responds to the park lamp request by energizing the trailer park lamps relay by applying ground to the trailer park lamps relay control circuit. When the trailer park lamps relay is energized, the relay switch contacts close and battery voltage is applied through the trailer parks lamp fuse to the trailer park lamp control circuit which illuminates the trailer park lamps.

Stop Lamps

For trailer stop lamp operation, the left and right trailer stop/turn signal lamp relay’s are supplied with battery voltage at all times. The brake pedal position sensor is used to sense the action of the driver application of the brake pedal. The brake pedal position sensor provides an analog voltage signal that will increase as the brake pedal is applied. The body control module (BCM) provides a low reference signal and a 5 V reference voltage to the brake pedal position sensor. When the variable signal reaches a voltage threshold indicating the brakes have been applied, the BCM energizes the left and right trailer stop/turn signal lamp relay’s by applying ground to the left and right trailer stop/turn signal lamp relay control circuits. With the left and right trailer stop/turn signal lamp relay’s energized, the relay switch contacts close and battery voltage is applied through the left and right trailer stop/turn signal fuse’s to the trailer stop lamp control circuits which illuminates the trailer stop lamps.

Turn Signal Lamps

For trailer turn signal lamp operation, the left and right trailer stop/turn signal lamp relay’s are supplied with battery voltage at all times. Ground is applied at all times to the turn signal/multifunction switch. The turn signal lamps may only be activated with the ignition switch in the ON or START positions. When the turn signal/multifunction switch is placed in either the TURN RIGHT or TURN LEFT position, ground is applied to the body control module (BCM) through either the right turn or left turn signal switch signal circuit. The BCM responds to the turn signal switch input by applying a pulsating ground to the left and right trailer stop/turn signal lamp relay control circuits energizing the relay’s in an ON and OFF cycle. With the left and right trailer stop/turn signal lamp relay’s energized, the relay switch contacts cycle ON and OFF applying battery voltage through the left and right trailer stop/turn signal fuse’s to the trailer turn signal lamp control circuits which illuminates the trailer turn signal lamps in an ON and OFF cycle.

Battery Run Down Protection/Inadvertent Power

To provide battery run down protection, the exterior lamps will be deactivated automatically under certain conditions. The BCM monitors the state of the headlamp switch. If the park or headlamp switch is ON when the ignition switch is placed in either the CRANK or RUN position and then placed in the OFF position, the BCM initiates a 10 minute timer. At the end of the 10 minutes, the BCM will turn off the control power output to the park lamp controls as well as the headlamp relay coils, deactivating the exterior lamps. This feature will be cancelled if any power mode other than OFF becomes active. The BCM will disable battery run down protection if any of the following conditions exist. The park or headlamp switch is placed in the ON to OFF position, and back to the ON position during battery run down protection. The BCM determined that the park or headlamp switch was not active when the ignition was turned OFF.

Interior Lighting Systems Description and Operation

Interior Lamps

The interior lighting system consist of two groups. This first group includes lamps that may not be dimmed.

- Dome lamps
- Reading lamps
- Sunshade mirror lamps

Dome Lamps

The dome lamp switch has 3 positions: DOOR, OFF, and ON. The ON position provides a ground for continuous operation and the dome lamps will remain illuminated until the switch is placed in either the DOOR or OFF position. When in the DOOR position, the dome lamps operation is controlled by the body control module (BCM). When any door is opened, the door ajar switch contacts close and the BCM receives a door-open input. The BCM illuminates the dome lamps when any door is opened or a door lock/unlock request is activated with the key fob. After all doors have been closed, the dome lamps will remain illuminated approximately 3 seconds after the last door closes. When the driver places the dome lamp switch in the OFF position, the dome lamps will be disabled. In the event that the dome lamps were to remain illuminated for more than 10 minutes with the ignition switch in the OFF position and no doors opened, the BCM will deactivate the dome lamps control circuit to prevent total battery discharge. The dome lamps will turn OFF using the theater dimming feature when controlled by the BCM.

Reading Lamps

The inadvertent power supply voltage circuit from the BCM provides battery positive voltage to each reading lamp. When a reading lamp switch is activated, the switch contacts close providing a path to ground and the reading lamp illuminates. If the operator inadvertently leaves a reading lamp ON, the BCM will turn all interior lamps OFF after 10 minutes has passed since any switch activation has been detected by the BCM.

Sunshade Mirror Lamps

The inadvertent power supply voltage circuit from the BCM provides battery voltage to each set of sunshade mirror lamps. When the sunshade mirror cover is opened, a switch closes providing ground and the sunshade lamps illuminate. If the operator inadvertently leaves a sunshade mirror cover open with the lamps ON, the BCM will turn all interior lamps OFF after 10 minutes has passed since any switch activation has been detected by the BCM.

Keyless Entry Interior Illumination

When the operator uses the keyless entry transmitter in order to unlock the doors, the BCM receives a door-unlock signal. The BCM must receive inputs from various systems that indicate that the ignition switch is OFF, the courtesy lamp switch is OFF, and all doors are closed before the BCM will activate the interior lamps. After all doors have been closed, the courtesy lamps will turn OFF immediately if the ignition switch is turned to the ON position, the door locks are LOCKED, or approximately 20 seconds after the last door closes. The BCM will turn off the courtesy lamps through the theater dimming feature. The BCM keeps the courtesy lamps on for 40 seconds after an alarm event is completed.

Interior Lamps Dimming

The second group includes lamps which may be dimmed. This group may use a combination of light emitting diodes (LED), incandescent lamps, and pulse width modulation (PWM) illumination.

- Dome/reading lamps – front
- Dome/reading lamps – rear
- Door lock switch – driver
- Door lock switch – passenger
- Hazard switch
- Headlamp switch
- HVAC control head assembly
- Multifunction switch – instrument panel
- Outside rearview mirror switch
- Radio
- Steering wheel control switch – left
- Steering wheel control switch – right
- Sun roof switch
- Sun roof tilt switch
- Window switch – passenger

With the headlamp switch in the PARK or HEAD position, the park lamp switch signal circuit provides an input to the body control module (BCM). The BCM responds by applying voltage to the park lamps as well as the backlight dimming control circuits illuminating all components with interior backlighting. All interior backlighting turns ON at the dimming level indicated by the instrument panel dimmer switch. The instrument panel dimmer switch is a momentary type switch and utilizes a resistor ladder to increase and decrease the brightness of the interior backlighting components. The instrument panel dimmer switch provides a voltage signal to the BCM that will increase as the brightness of the lights are increased and decrease as the brightness of the lights are decreased. The BCM provides a low reference signal and a B+ circuit to the switch. When the instrument panel dimmer switch is held in the desired position, the dimmed voltage setting is applied from the instrument panel dimmer switch through the instrument panel dimmer switch signal circuit to the BCM. The BCM interprets the signal and applies a pulse width modulated (PWM) voltage through the backlighting control circuits illuminating the interior backlighting to the requested level of brightness.

The backlighting for the HVAC controls, instrument cluster, and radio controls are controlled by the BCM via serial data. When the instrument panel dimmer switch is operated to the desired backlighting setting, the BCM sends a serial data message to the HVAC control module, radio, and instrument cluster requesting the backlighting be adjusted to the desired level.

Battery Rundown Protection/Inadvertent Power

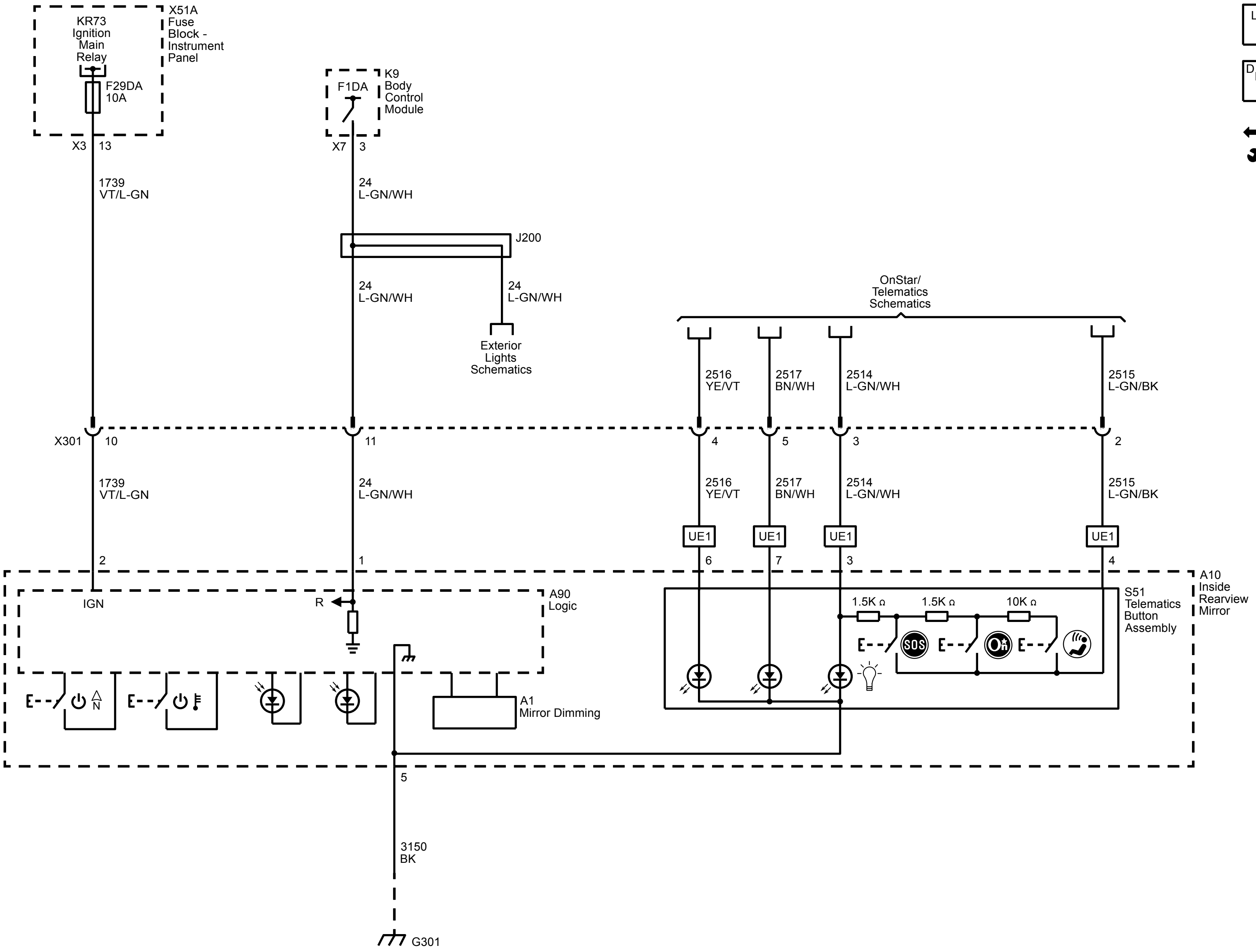
The BCM inadvertent power supply voltage circuit provides battery voltage to all of the interior courtesy lamps. In the event that any of these lamps were to remain illuminated for a period of more than 10 minutes with the ignition switch in the OFF position, the BCM will deactivate the inadvertent power supply voltage circuit to prevent total battery discharge. If the ignition switch is turned to any position other than OFF, or if a lamp switch is activated during this 10 minute period, the timer resets for another 10 minutes.

Mirrors

Schematic and Routing Diagrams

Inside Rearview Mirror Schematics

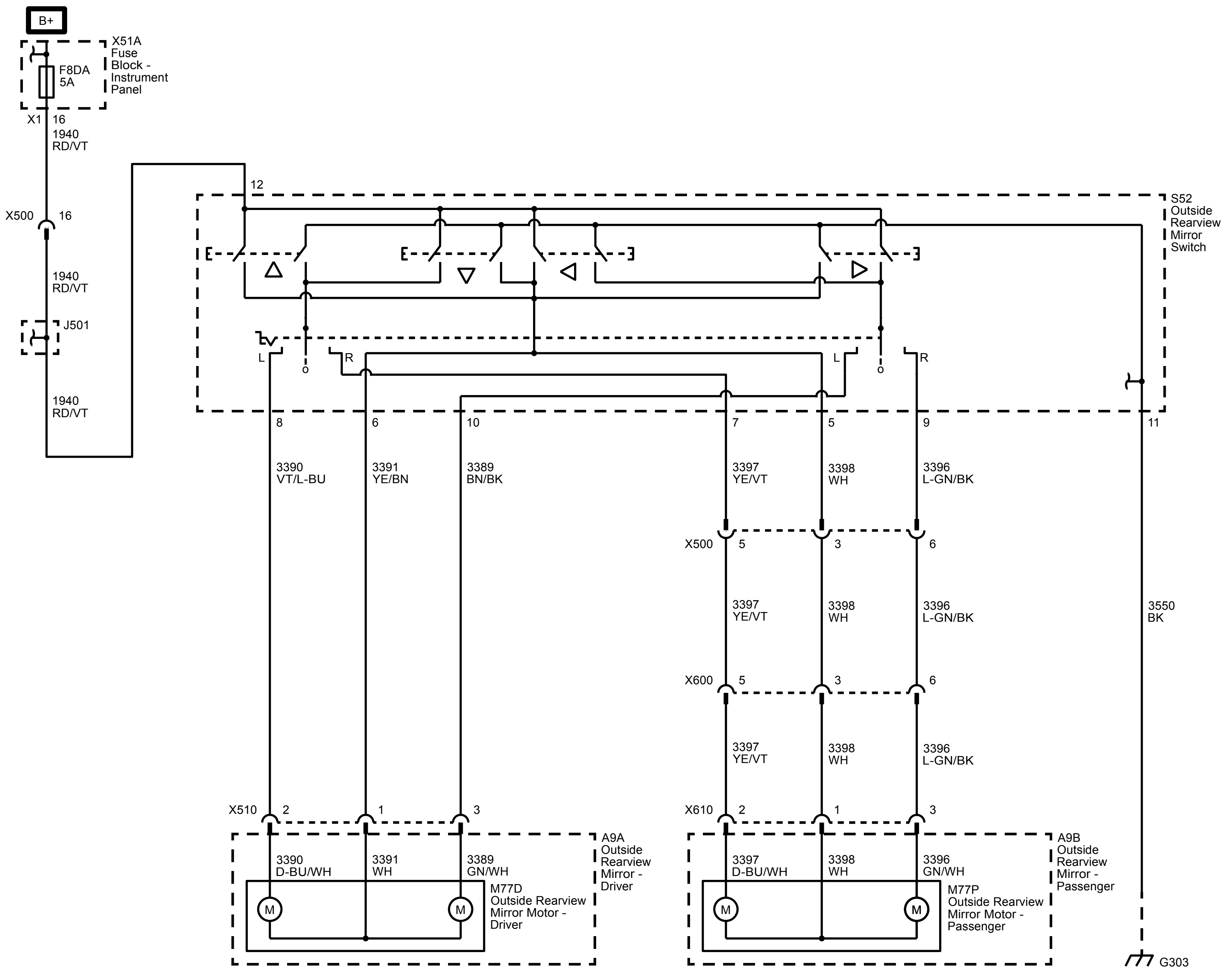
Auto-Dimming Mirror (DD8)

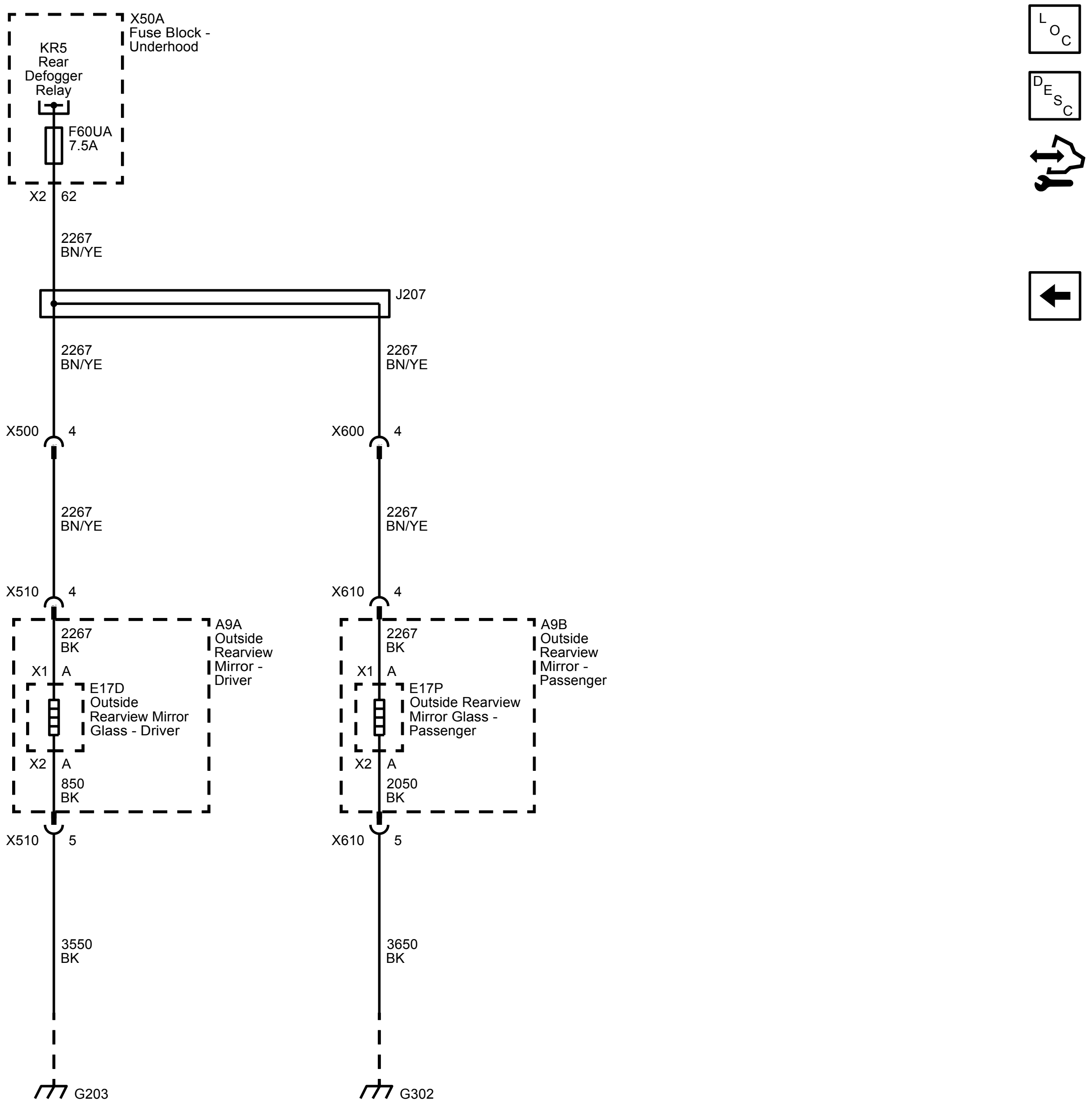

KR73
Ignition
Main
Relay
X51A
Fuse
Block -
Instrument
Panel
F29DA
10A
X3
13
1739
VT/L-GN
F1DA
K9
Body
Control
Module
X7
3
24
L-GN/WH
J200
24
L-GN/WH
24
L-GN/WH
Exterior
Lights
Schematics
OnStar/
Telematics
Schematics
2516
YE/VT
2517
BN/WH
2514
L-GN/WH
2515
L-GN/BK
X301
10
11
4
5
3
2
1739
VT/L-GN
24
L-GN/WH
2516
YE/VT
2517
BN/WH
2514
L-GN/WH
2515
L-GN/BK
UE1
UE1
UE1
UE1
2
1
6
7
3
4
A10
Inside
Rearview
Mirror
A90
Logic
IGN
R
S51
Telematics
Button
Assembly
1.5K Ω
1.5K Ω
10K Ω
SOS
A1
Mirror Dimming
5
3150
BK
G301

Outside Rearview Mirror Schematics

Driver and Passenger Position

LOC
DESC


B+
X51A
Fuse
Block -
Instrument
Panel
F8DA
5A
X1
16
1940
RD/VT
X500
16
1940
RD/VT
J501
1940
RD/VT
12
S52
Outside
Rearview
Mirror
Switch
L
o
R
L
o
R
8
6
10
7
5
9
11
3390
VT/L-BU
3391
YE/BN
3389
BN/BK
3397
YE/VT
3398
WH
3396
L-GN/BK
X500
5
3
6
3397
YE/VT
3398
WH
3396
L-GN/BK
3550
BK
X600
5
3
6
3397
YE/VT
3398
WH
3396
L-GN/BK
X510
2
1
3
X610
2
1
3
3390
D-BU/WH
3391
WH
3389
GN/WH
A9A
Outside
Rearview
Mirror -
Driver
M
M
M77D
Outside Rearview
Mirror Motor -
Driver
3397
D-BU/WH
3398
WH
3396
GN/WH
A9B
Outside
Rearview
Mirror -
Passenger
M
M
M77P
Outside Rearview
Mirror Motor -
Passenger
G303


X50A
Fuse Block -
Underhood
KR5
Rear
Defogger
Relay
F60UA
7.5A
X2
62
2267
BN/YE
J207
2267
BN/YE
2267
BN/YE
X500
4
X600
4
2267
BN/YE
2267
BN/YE
X510
4
X610
4
A9A
Outside
Rearview
Mirror -
Driver
2267
BK
X1
A
E17D
Outside
Rearview Mirror
Glass - Driver
X2
A
850
BK
X510
5
3550
BK
G203
A9B
Outside
Rearview
Mirror -
Passenger
2267
BK
X1
A
E17P
Outside Rearview
Mirror Glass -
Passenger
X2
A
2050
BK
X610
5
3650
BK
G302
L
O
C
D
E
S
C

Description and Operation

Automatic Day-Night Mirror Description and Operation

Inside Rearview Mirror with the Automatic Day-Night Feature System Operation

The inside rearview mirror uses 2 photocell sensors. One sensor is the headlight sensor, located on the face side of the mirror. The headlight sensor is used to determine light conditions present at the mirror face. The other sensor is the ambient light sensor, located on the rear of the mirror or windshield side. The ambient light sensor is used to determine the exterior light conditions. With a low exterior light condition detected, and a high light condition from behind of the car, at the headlight sensor, the inside rearview mirror will automatically darken the face of the mirror.

In the daytime, the mirror is in a normal state because of the high exterior light condition that is indicated by the ambient light sensor. With the gear selector lever in the REVERSE position, backup lamp supply voltage is supplied as an input to the inside rearview mirror. The mirror monitors this input to disable the automatic day-night feature. This allows the driver to see objects in the mirror clearly when backing up, even during the night.

Outside Mirror Description and Operation

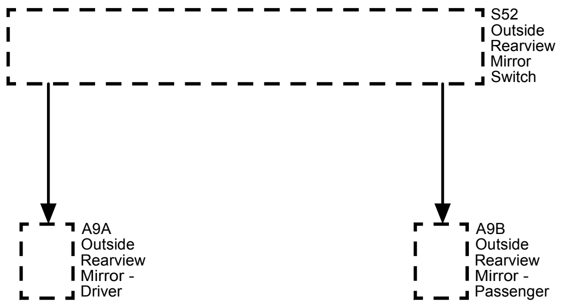
Power Mirror System Components

The power mirror system consists of the following components:

- Outside rearview mirror switch
- Mirror selector switch
- Driver outside rearview mirror
- Passenger outside rearview mirror

Each of the outside rearview mirror contains two motors. The vertical motor operates the mirror in the up and down directions, and the horizontal motor operates the mirror in the left and right directions.

Power Mirros Without A45 Block Diagram



Power Mirror System Controls

The outside rearview mirror switch is a four position directional switch: Up, Down, Left and Right.

The mirror select switch is a three position switch: left, neutral/fold, and right.

Power Mirror System Operation

The outside rearview mirror switch receives battery voltage from the underhood fuse block The power mirror switch also receives a constant ground.

The four positions of the direction switch have dual switch contacts. Each of the contacts are connected to opposing sides of the appropriate power mirror motors through the selector switch. The selector switch completes these circuits depending on the position of the selector switch, L or R.

If the selector switch is placed in the L position and the up switch is pressed, battery voltage will be supplied to the left outside rearview mirror vertical motor through the left mirror motor vertical control circuit and ground through the left mirror motor common control circuit. If the down switch is pressed, battery voltage will be supplied to the left outside rearview mirror vertical motor through the left mirror motor common control circuit and ground through the left mirror motor vertical control circuit.

The remainder of the mirror functions operate in the same manner as described above. Placing the power mirror switch in opposing positions, left/right or up/down, will reverse the polarity to the mirror motor, reversing the direction of movement.

Heated Mirrors (If Equipped)

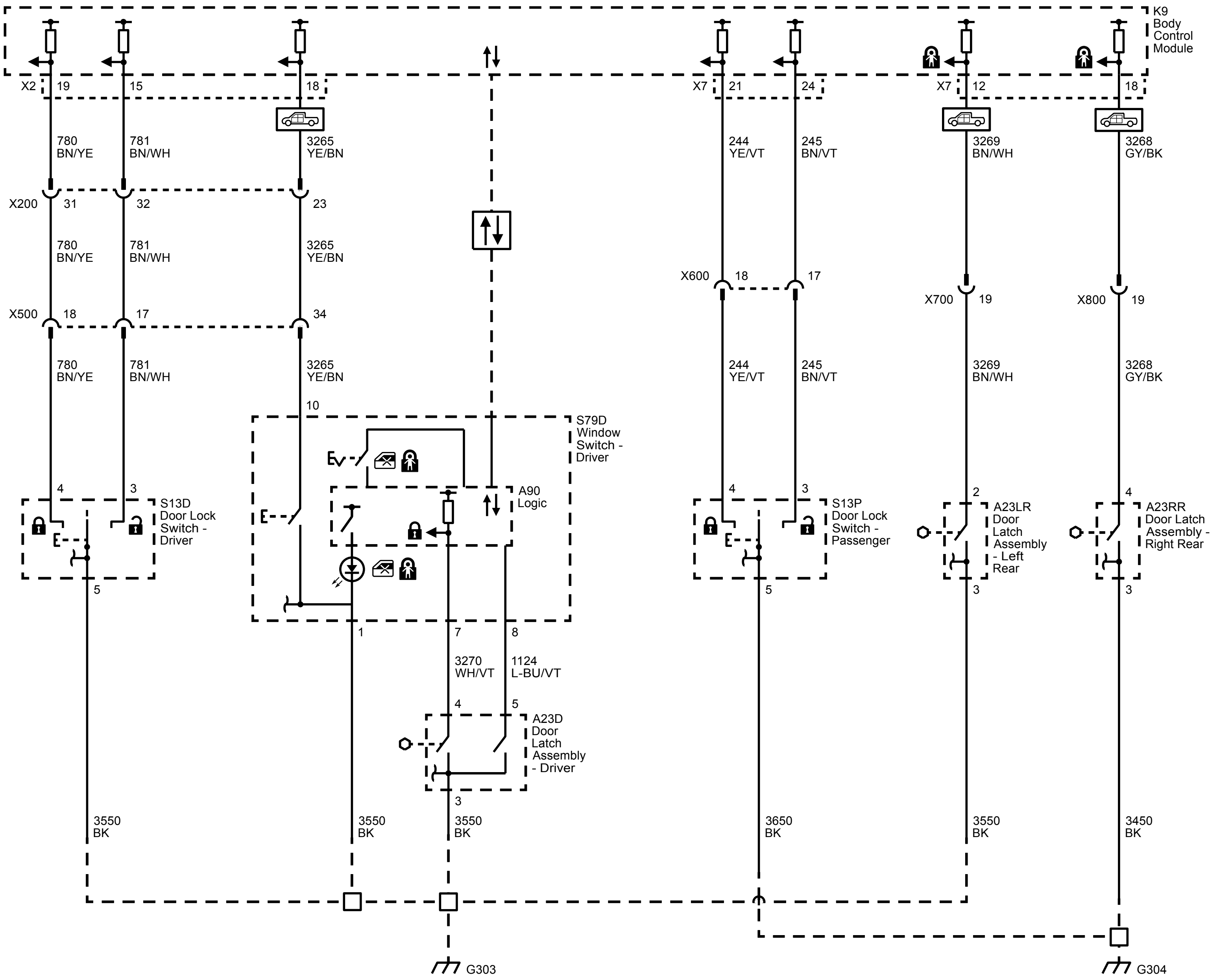
The heated mirrors are controlled through the rear defog relay. Whenever the rear window defogger is turned on battery voltage is supplied to the mirror heater elements through the left and right mirror heater element control circuits.

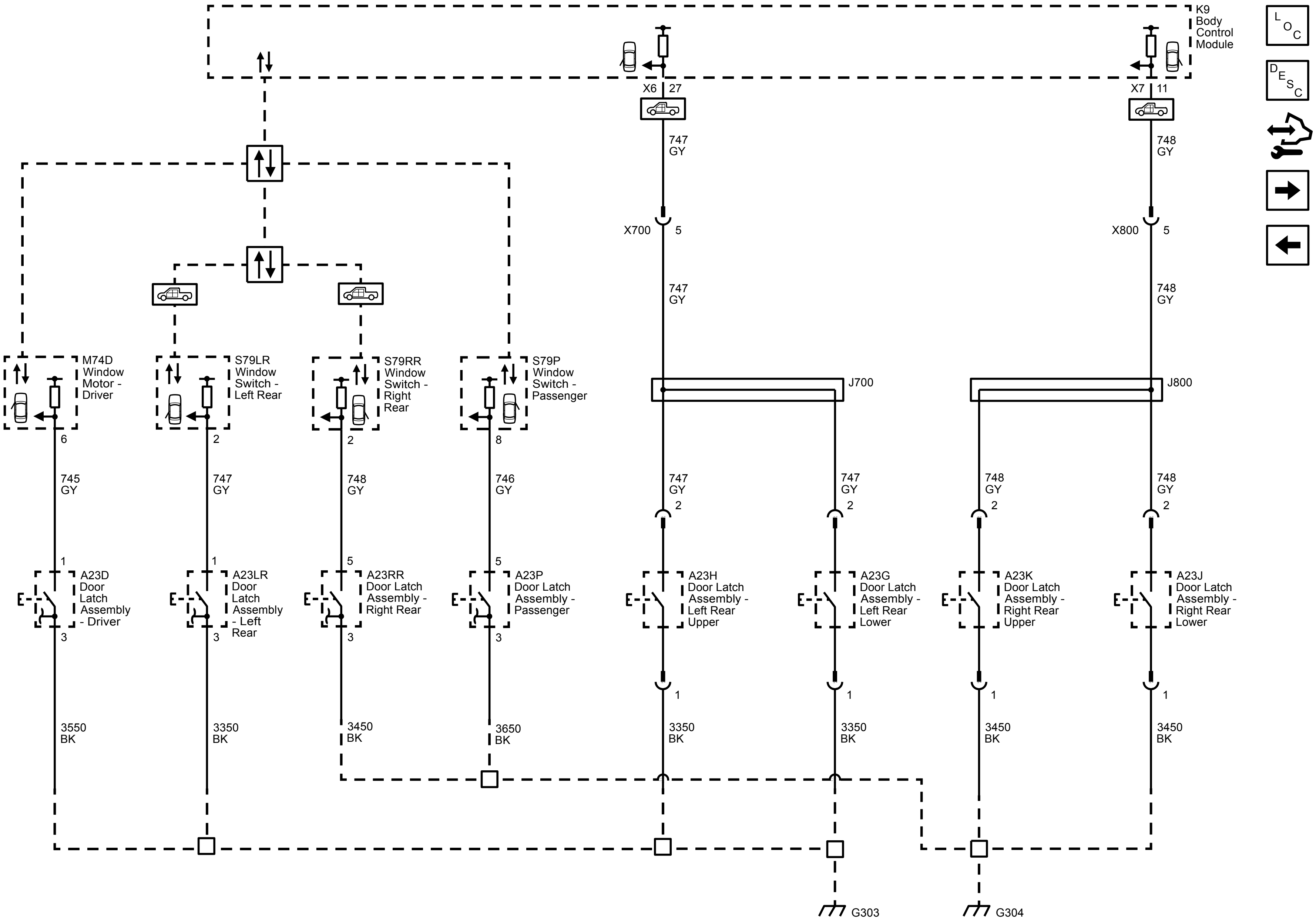
Vehicle Access

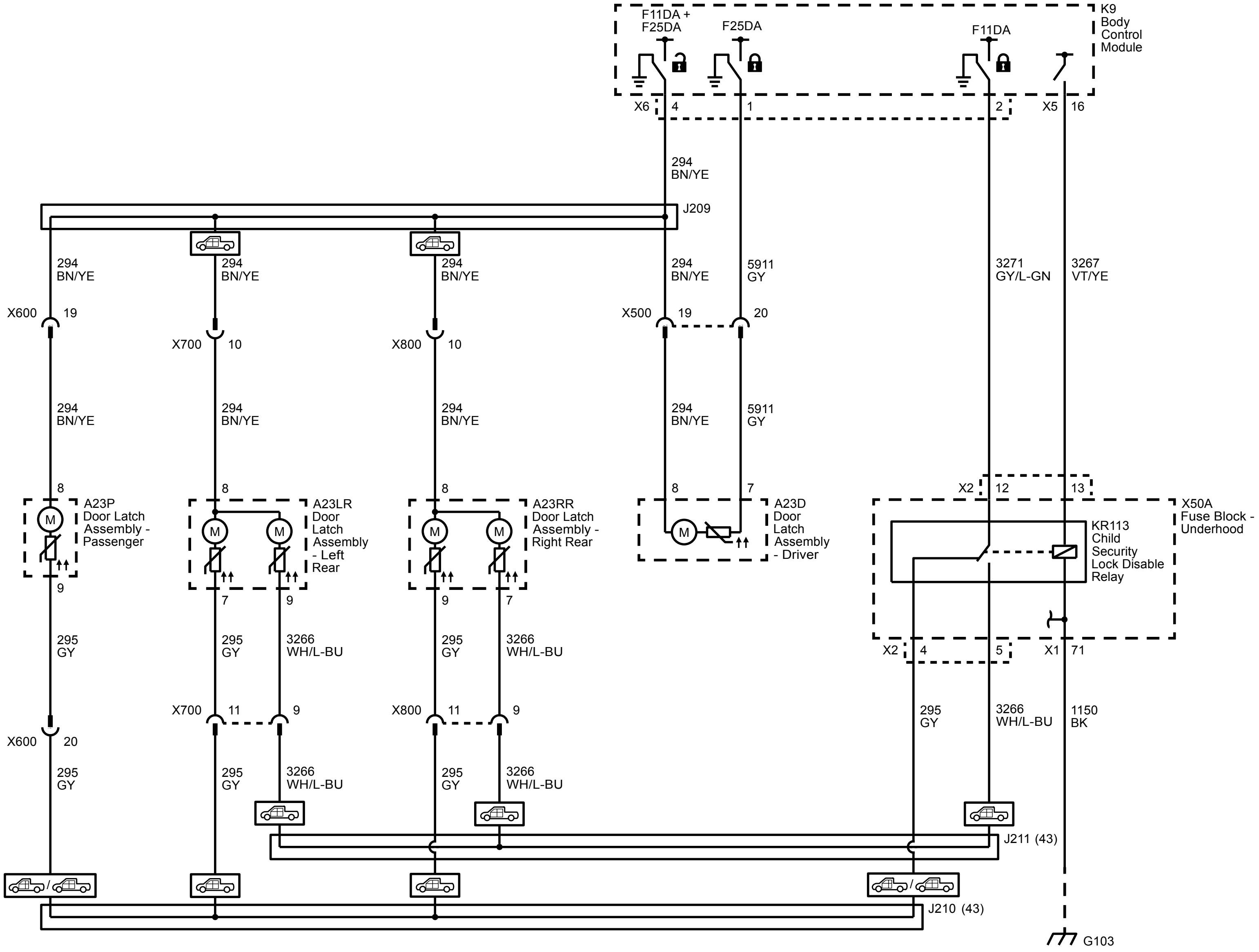
Schematic and Routing Diagrams

Door Lock/Indicator Schematics

Controls


K9
Body
Control
Module
X2
19
15
18
X7
21
24
X7
12
18
780
BN/YE
781
BN/WH
3265
YE/BN
244
YE/VT
245
BN/VT
3269
BN/WH
3268
GY/BK
X200
31
32
23
780
BN/YE
781
BN/WH
3265
YE/BN
X600
18
17
X700
19
X800
19
X500
18
17
34
780
BN/YE
781
BN/WH
3265
YE/BN
244
YE/VT
245
BN/VT
3269
BN/WH
3268
GY/BK
10
S79D
Window
Switch -
Driver
A90
Logic
4
3
S13D
Door Lock
Switch -
Driver
5
4
3
S13P
Door Lock
Switch -
Passenger
5
2
A23LR
Door
Latch
Assembly
- Left
Rear
3
4
A23RR
Door Latch
Assembly -
Right Rear
3
1
7
8
3270
WH/VT
1124
L-BU/VT
4
5
A23D
Door
Latch
Assembly
- Driver
3
3550
BK
3550
BK
3550
BK
3650
BK
3550
BK
3450
BK
G303
G304


K9
Body
Control
Module
L O C
D E S C
X6 27
747 GY
X700 5
747 GY
X7 11
748 GY
X800 5
748 GY
J700
J800
M74D
Window
Motor -
Driver
6
745 GY
S79LR
Window
Switch -
Left Rear
2
747 GY
S79RR
Window
Switch -
Right
Rear
2
748 GY
S79P
Window
Switch -
Passenger
8
746 GY
747 GY 2
747 GY 2
748 GY 2
748 GY 2
1
A23D
Door
Latch
Assembly
- Driver
3
1
A23LR
Door
Latch
Assembly
- Left
Rear
3
5
A23RR
Door Latch
Assembly -
Right Rear
3
5
A23P
Door Latch
Assembly -
Passenger
3
A23H
Door Latch
Assembly -
Left Rear
Upper
A23G
Door Latch
Assembly -
Left Rear
Lower
A23K
Door Latch
Assembly -
Right Rear
Upper
A23J
Door Latch
Assembly -
Right Rear
Lower
1
1
1
1
3550 BK
3350 BK
3450 BK
3650 BK
3350 BK
3350 BK
3450 BK
3450 BK
G303
G304


K9
Body
Control
Module
F11DA +
F25DA
F25DA
F11DA
X6 4
1
2
X5 16
294
BN/YE
J209
294
BN/YE
294
BN/YE
294
BN/YE
294
BN/YE
5911
GY
3271
GY/L-GN
3267
VT/YE
X600 19
X700 10
X800 10
X500 19
20
294
BN/YE
294
BN/YE
294
BN/YE
294
BN/YE
5911
GY
8
A23P
Door Latch
Assembly -
Passenger
8
A23LR
Door
Latch
Assembly
- Left
Rear
8
A23RR
Door Latch
Assembly -
Right Rear
8
7
A23D
Door
Latch
Assembly
- Driver
X2 12
13
X50A
Fuse Block -
Underhood
KR113
Child
Security
Lock Disable
Relay
M
9
7
9
9
7
X2 4
5
X1 71
295
GY
295
GY
3266
WH/L-BU
295
GY
3266
WH/L-BU
295
GY
3266
WH/L-BU
1150
BK
X700 11
9
X800 11
9
X600 20
295
GY
295
GY
3266
WH/L-BU
295
GY
3266
WH/L-BU
J211 (43)
J210 (43)
G103

Description and Operation

Door Ajar Indicator Description and Operation

Door Ajar Indicator System Components

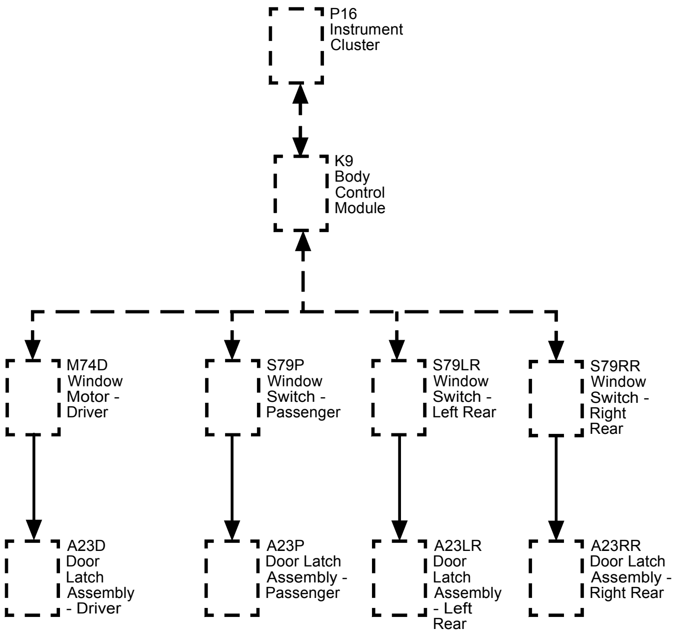
The door ajar indicator system consists of the following components:

- Body control module
- Instrument cluster
- Driver door latch
- Passenger door latch
- Left rear door latch
- Right rear door latch
- Driver window motor (AXG)
- Passenger window switch (AED)
- Left rear window switch (AEQ)
- Right rear window switch (AEQ)

Door Ajar System

Depending upon if the vehicle is a standard cab, extended cab or crew cab and/or is equipped with express up/down power windows or standard express down power windows or manual crank windows affects how the driver and passenger door ajar signal circuits are configured and monitored.

Door Ajar Indicator With AXG/AED/AEQ Block Diagram


P16 Instrument Cluster
K9 Body Control Module
M74D Window Motor - Driver
S79P Window Switch - Passenger
S79LR Window Switch - Left Rear
S79RR Window Switch - Right Rear
A23D Door Latch Assembly - Driver
A23P Door Latch Assembly - Passenger
A23LR Door Latch Assembly - Left Rear
A23RR Door Latch Assembly - Right Rear

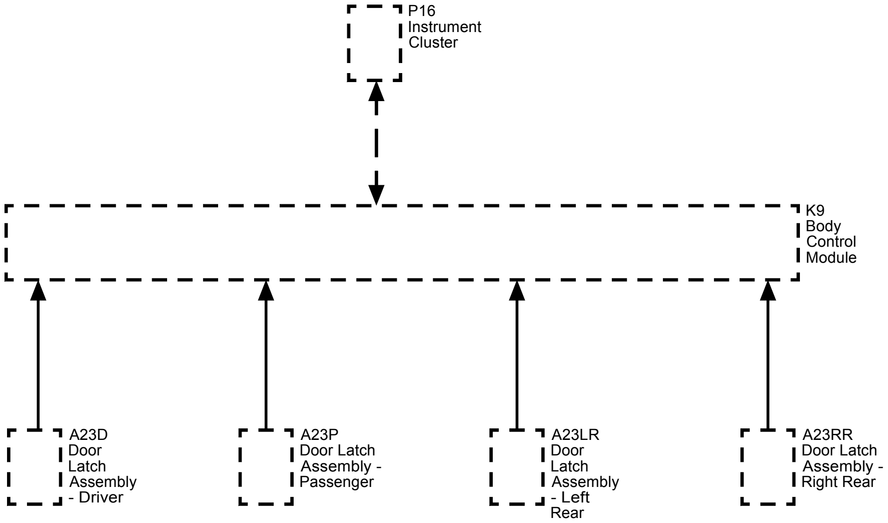
Driver Door Ajar (With AXG)

The driver window motor will provide a 12V signal to the driver door ajar switch within the door latch to indicate the status of the door. When the driver door is open, the contract within the ajar switch closes providing a ground part for the signal circuit. The driver window motor will detect the voltage drop in the ajar signal circuit and will send a serial data message to the body control module. The body control module will then send a message to the instrument cluster which will illuminate the door ajar icon.

Passenger and Rear Doors Ajar (With AED and AEQ)

The passenger and rear window switches provide a 12V signal to the respective door ajar switch within the door latch to indicate the status of the door. When the door is open, the contract within the ajar switch closes providing a ground part for the signal circuit. The window switch will detect the voltage drop in the ajar signal circuit and will send a serial data message to the body control module. The body control module will then send a message to the instrument cluster which will illuminate the door ajar icon.

Door Ajar Indicator Block Diagram


P16
Instrument
Cluster
K9
Body
Control
Module
A23D
Door
Latch
Assembly
- Driver
A23P
Door Latch
Assembly -
Passenger
A23LR
Door
Latch
Assembly
- Left
Rear
A23RR
Door Latch
Assembly -
Right Rear

Driver, Passenger and Rear Doors Ajar (Without AXG, AED or AEQ)

The body control module provides a 12V signal to each door ajar switch within the door latch to indicate the status of the door. When the door is open, the contract within the ajar switch closes providing a ground part for the signal circuit. The body control module will detect the voltage drop in the ajar signal circuit and will send a message to the instrument cluster which will illuminate the door ajar icon

Power Door Locks Description and Operation

Door Lock System Components

The power door lock system consists of the following components:

- Driver door lock switch
- Driver door key cylinder switch (Part of the driver door latch assembly)
- Child door lockout switch (Part of the driver window switch)
- Passenger door lock switch
- Front door lock actuators
- Rear door lock actuators (Extended and crew cab models)
- Body control module (BCM)
- Remote control door lock receiver
- Keyless entry transmitter
- Underhood fuse block (Contains child security lock disable PCB relay)

Door Lock System Controls

The power door lock system can be controlled by any of the following:

- A door lock switch LOCK or UNLOCK activation
- A key cylinder switch unlock activation
- A keyless entry transmitter activation
- Pressing the driver door lock plunger flush with the door panel will lock all doors

Door Lock Operation

The BCM supplies a 12 volt signal to the lock and unlock signal circuits of the driver and passenger door lock switches. When the appropriate switch is pressed, a contact within the door lock switch closes providing a ground path for the signal circuit. The BCM will detect the voltage drop in the signal and will command the doors to perform the lock or unlock functions.

The driver door latch contains 2 internal switches and 2 signal circuits that are monitored by the BCM. One switch is controlled by the driver key cylinder switch, when the key is turned to the unlock position, a switch will close and the BCM will command the remaining doors to UNLOCK. The other switch is controlled by the driver door lock plunger, pressing the plunger flush with the door panel will close the switch, the switch will close and the BCM will command the remaining doors to LOCK

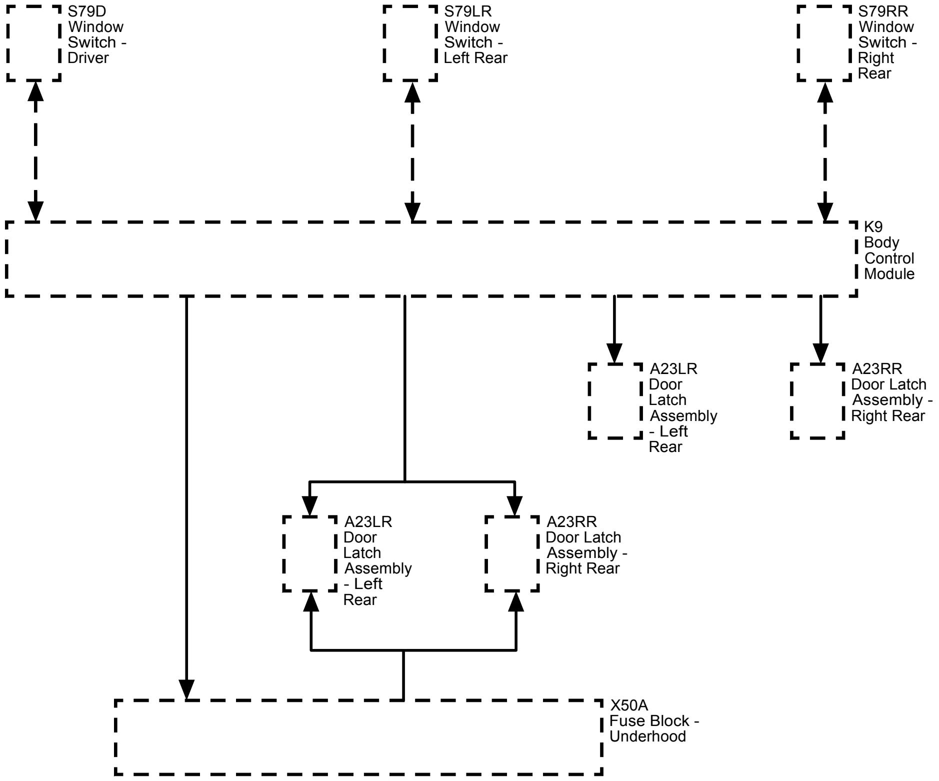
The BCM may also receive a LOCK or UNLOCK command from the remote control door lock receiver, refer to Keyless Entry System Description and Operation for information on the keyless entry system

The BCM, upon receipt of a lock switch lock or unlock signal, will supply voltage to the door lock actuator lock or unlock control circuits and ground to the other lock actuator control circuit, the doors will then lock or unlock as commanded.

The following three circuits are used to operate the lock:

- Driver door unlock
- Passenger doors unlock
- All doors lock

Power Door Child Lock Block Diagram


S79D Window Switch - Driver
S79LR Window Switch - Left Rear
S79RR Window Switch - Right Rear
K9 Body Control Module
A23LR Door Latch Assembly - Left Rear
A23RR Door Latch Assembly - Right Rear
A23LR Door Latch Assembly - Left Rear
A23RR Door Latch Assembly - Right Rear
X50A Fuse Block - Underhood

Rear Window and Rear Door Lockout Operation

The operator has the option to disable the interior rear door handles to prevent the unauthorized opening of the rear door doors while still retaining normal driver and passenger door handle functions. The driver door window switch has a lockout switch that will disable the interior rear door handles and the local rear window switches. When the lockout switch is pressed, the BCM will command the child lockout latches and will also send a disable command to the local rear window switches. The driver and passenger doors will still function normally by pressing a door lock switch which will unlock the doors but the child lockout latches will continue to disable the interior rear door handles.

Pressing the lockout switch again will signal a command to the BCM to unlatch the rear doors, restore normal interior rear door handle functions and restore normal function of the rear window switches

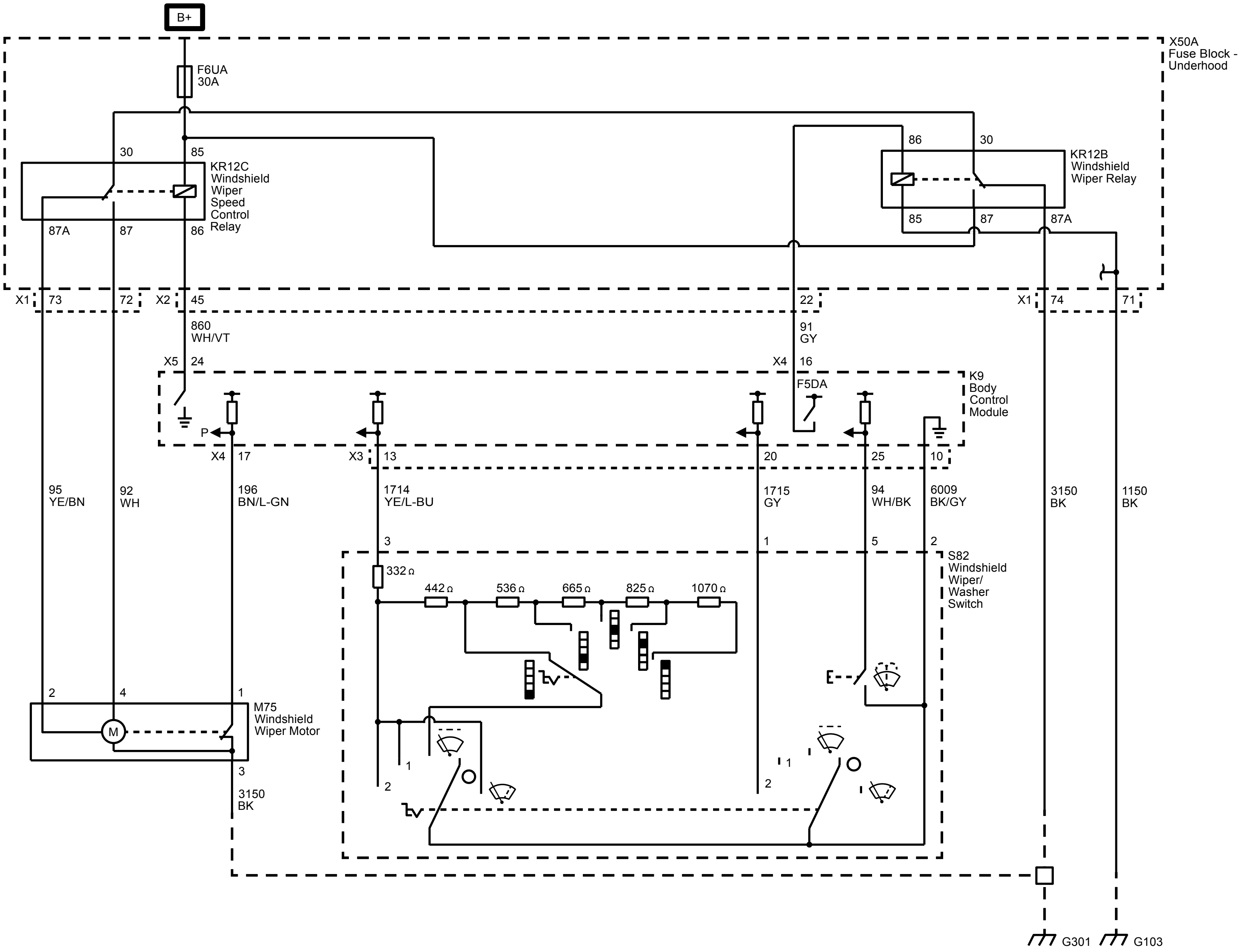
If the lockout indicator flashes while commanding the lockout system, indicates that the BCM has detected a fault in the system and that one or both interior rear door handles are not locked out and/or the local rear window switches are not locked out.

Wipers and Washers

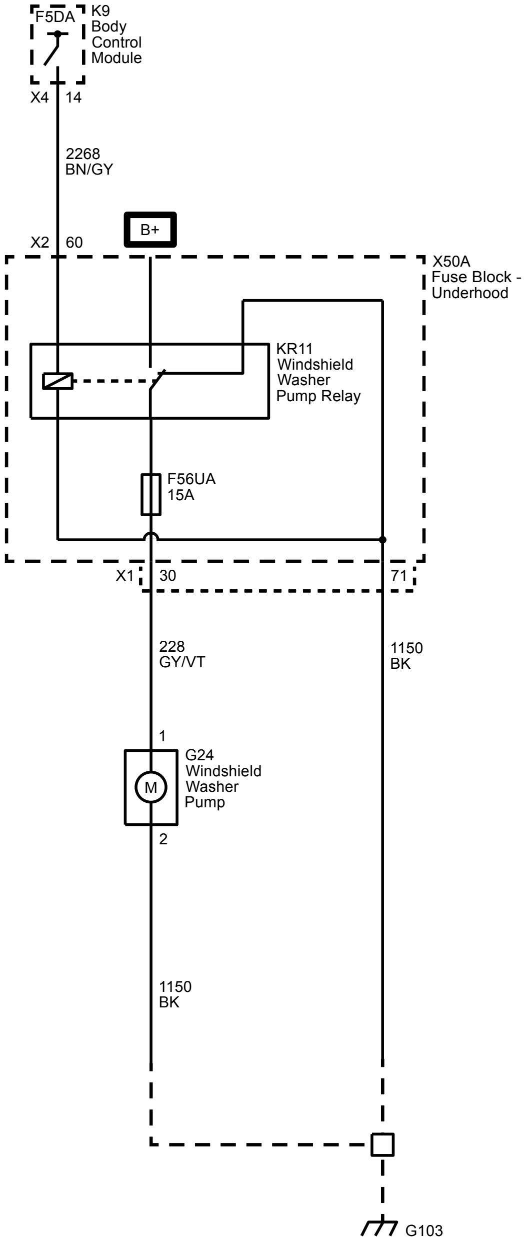
Schematic and Routing Diagrams

Wiper/Washer Schematics

Wiper/Washer Control


B+
F6UA
30A
X50A
Fuse Block -
Underhood
30
85
KR12C
Windshield
Wiper
Speed
Control
Relay
87A
87
86
86
30
KR12B
Windshield
Wiper Relay
85
87
87A
X1
73
72
X2
45
22
X1
74
71
860
WH/VT
91
GY
X5
24
X4
16
F5DA
K9
Body
Control
Module
P
X4
17
X3
13
20
25
10
95
YE/BN
92
WH
196
BN/L-GN
1714
YE/L-BU
1715
GY
94
WH/BK
6009
BK/GY
3150
BK
1150
BK
3
1
5
2
332 Ω
442 Ω
536 Ω
665 Ω
825 Ω
1070 Ω
S82
Windshield
Wiper/
Washer
Switch
2
4
1
M75
Windshield
Wiper Motor
M
3
3150
BK
1
2
1
2
G301
G103

Washer Pump


F5DA
K9
Body
Control
Module
X4
14
2268
BN/GY
B+
X2
60
X50A
Fuse Block -
Underhood
KR11
Windshield
Washer
Pump Relay
F56UA
15A
X1
30
71
228
GY/VT
1150
BK
1
G24
Windshield
Washer
Pump
M
2
1150
BK
G103

Description and Operation

Wiper/Washer System Description and Operation

Wiper/Washer System Components

The wiper/washer system consists of the following electrical components:

- Windshield Wiper Relay
- Windshield Wiper Speed Control Relay
- Windshield Washer Pump
- Windshield Washer Pump Relay
- Windshield Wiper Motor
- Windshield Wiper/Washer Switch
- Body Control Module (BCM)
- Underhood Fuse Block

Windshield Wiper System

The body control module (BCM) controls the wiper motor via two removable relays (Windshield Wiper Relay and Windshield Wiper Speed Control Relay). The BCM determines the wipe/wash system mode of operation by monitoring several signals from the Windshield Wiper/Washer Switch.

The BCM has 3 signal circuits, the first signal circuit is the Windshield Wiper Switch Low Reference, where the BCM provides a low reference signal to the Windshield Wiper/Washer Switch. Each input of the BCM provides a switched battery pull-up for each Windshield Wiper/Washer Switch output signal it receives.

The second signal circuit is the Windshield Wiper Switch Low Signal, and it consists of 6 resistors in the windshield wiper/washer switch configured as a resistor ladder network. The BCM monitors the voltage, and when high speed windshield wiper operation is requested, the windshield wiper control switch is connected to a different set of resistors into the circuit resulting in different voltages appearing on the BCM A/D input. To initiate low speed operation, the BCM only energizes the front wiper motor on/off relay. This allows battery voltage from the wiper fuse to be applied through the switched contacts of the wiper motor on/off relay, through the normally closed contacts of the wiper high/low speed relay, to the low speed control circuit of the windshield wiper motor.

The third signal circuit is the Windshield Wiper Switch High Signal, the BCM monitors the voltage, and when high speed windshield wiper operation is requested, the BCM continues to apply voltages to the windshield wiper relay control circuit and also applies ground to the windshield wiper speed control relay control circuit. This will cause the contacts in the windshield wiper speed control relay to close and apply B+ to the windshield wiper motor through the windshield wiper high speed control circuit, enabling high speed wiper operation.

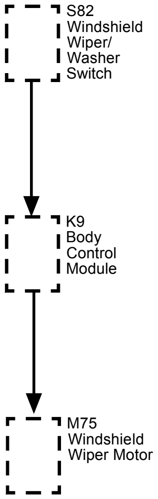
Parking the wiper motor, the BCM monitors the park circuit until the park switch pulls the park circuit to ground. At this time, the BCM will immediately deactivate the wiper motor on/off relay. The relay contacts will switch back to their normally closed position and will apply ground to the wiper motor power inputs through the normally closed contacts of the wiper high/low relay. This deactivates and dynamically brakes the wiper motor in the park position. When the wiper switch is turned to the OFF position while the wiper motor is somewhere in mid-cycle, the BCM will continue to operate the motor until the wipers reach the park position. If the BCM is running the wiper motor and does not see a state transition of the park switch after 8 s, the wipers will stop immediately when the wiper switch is turned to OFF. If the ignition is turned OFF while the wipers are in mid-cycle, the wipers will stop immediately, regardless of position. The BCM will park the wipers next time the ignition is turned ON.

The windshield wiper system MIST operation is identical to LOW speed operation, except that the MIST switch is a press and release type switch. When the wiper switch is moved to the MIST position and released, low speed wiper motor operation is started and will continue until 1 cycle is complete. If the wiper switch is moved to the MIST position and held, the wiper motor will operate in the LOW speed mode until the switch is released.

Windshield wiper intermittent operation is a low speed wiper motor function with a variable delay interval between the wiper motor cycles. The duration of the delay is controlled by the front wiper control switch's intermittent 1 thru intermittent 5 settings. The wiper operation is as follows

1. The BCM will initiate a single wipe by activating its front wiper ON/OFF relay output.
2. At the completion of a single wipe, the BCM will park the wipers as described above.
3. The BCM will then pause the wipers in their park position for the time duration associated with intermittent delay switch setting.
4. When the delay time expires repeat Steps 1 and 3 until the system is turned off or taken out of intermittent mode. If the wiper switch is moved from a longer delay interval to a shorter delay interval, the BCM will command an immediate wipe cycle and reset the delay timer to the shorter delay interval.

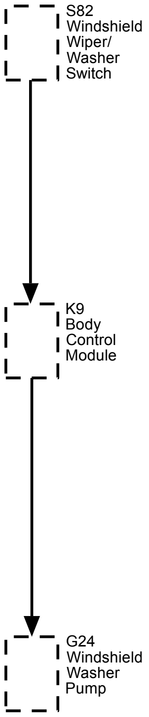
Front Wiper Block Diagram


S82
Windshield
Wiper/
Washer
Switch
K9
Body
Control
Module
M75
Windshield
Wiper Motor

Windshield Washer System

The windshield washer system contains a windshield washer pump, a windshield washer pump relay, windshield wiper/washer switch. the windshield washer pump is controlled by the body control module (BCM) via a removable relay. When the washer switch is depressed, the BCM monitors the signal circuit by the washer request circuit. The BCM then applies voltage through a control circuit to the removable windshield washer pump relay. With the relay energized, fused battery voltage is applied through the switch contacts of the relay and the control circuit to activate the windshield washer pump.

Washers System Block Diagram


S82
Windshield
Wiper/
Washer
Switch
K9
Body
Control
Module
G24
Windshield
Washer
Pump

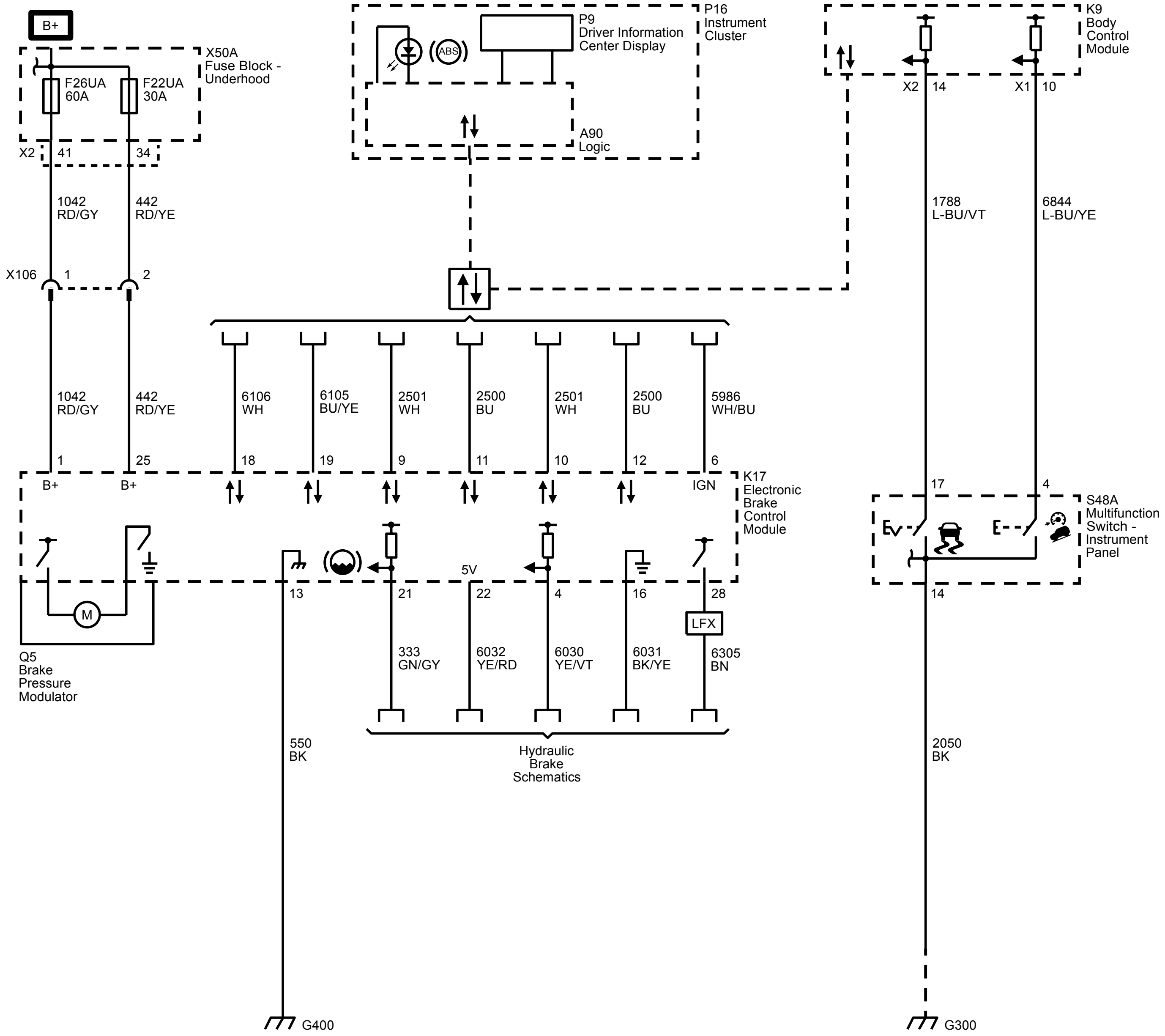
Brakes

Antilock Brake System

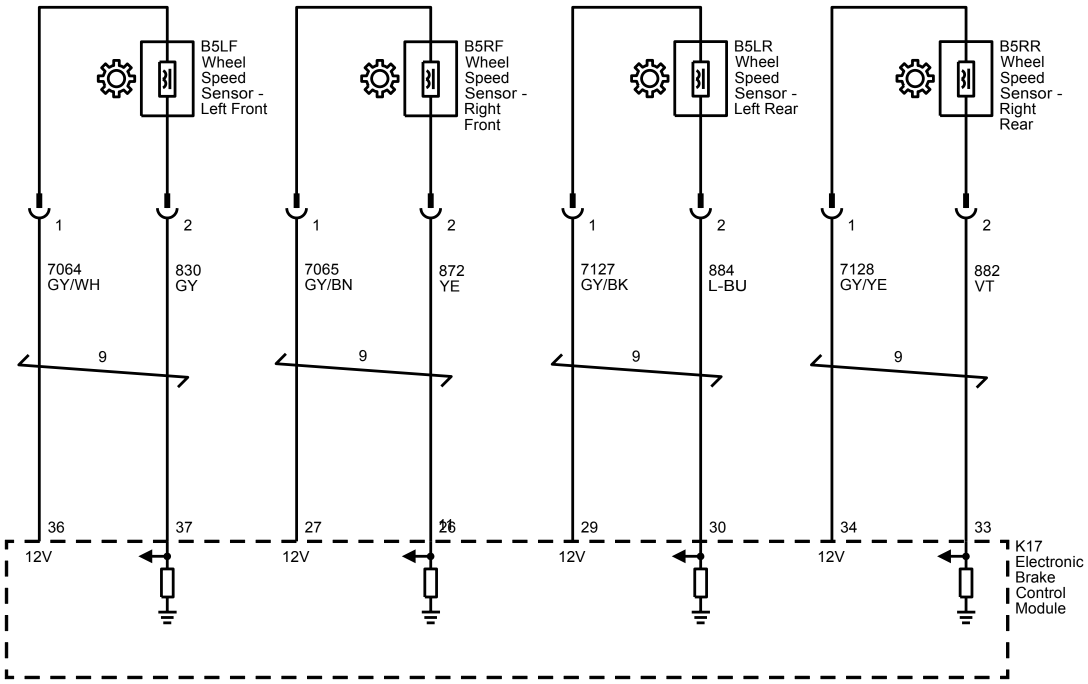
Schematic and Routing Diagrams

Antilock Brake System Schematics

Power, Ground, Serial Data, Traction Control and References


B+
X50A Fuse Block - Underhood
F26UA 60A
F22UA 30A
X2
41
34
1042 RD/GY
442 RD/YE
X106
1
2
1042 RD/GY
442 RD/YE
P9 Driver Information Center Display
P16 Instrument Cluster
ABS
A90 Logic
K9 Body Control Module
X2
14
X1
10
1788 L-BU/VT
6844 L-BU/YE
6106 WH
6105 BU/YE
2501 WH
2500 BU
2501 WH
2500 BU
5986 WH/BU
1
25
18
19
9
11
10
12
6
B+
B+
IGN
K17 Electronic Brake Control Module
5V
13
21
22
4
16
28
LFX
M
Q5 Brake Pressure Modulator
333 GN/GY
6032 YE/RD
6030 YE/VT
6031 BK/YE
6305 BN
Hydraulic Brake Schematics
550 BK
G400
17
4
S48A Multifunction Switch - Instrument Panel
14
2050 BK
G300

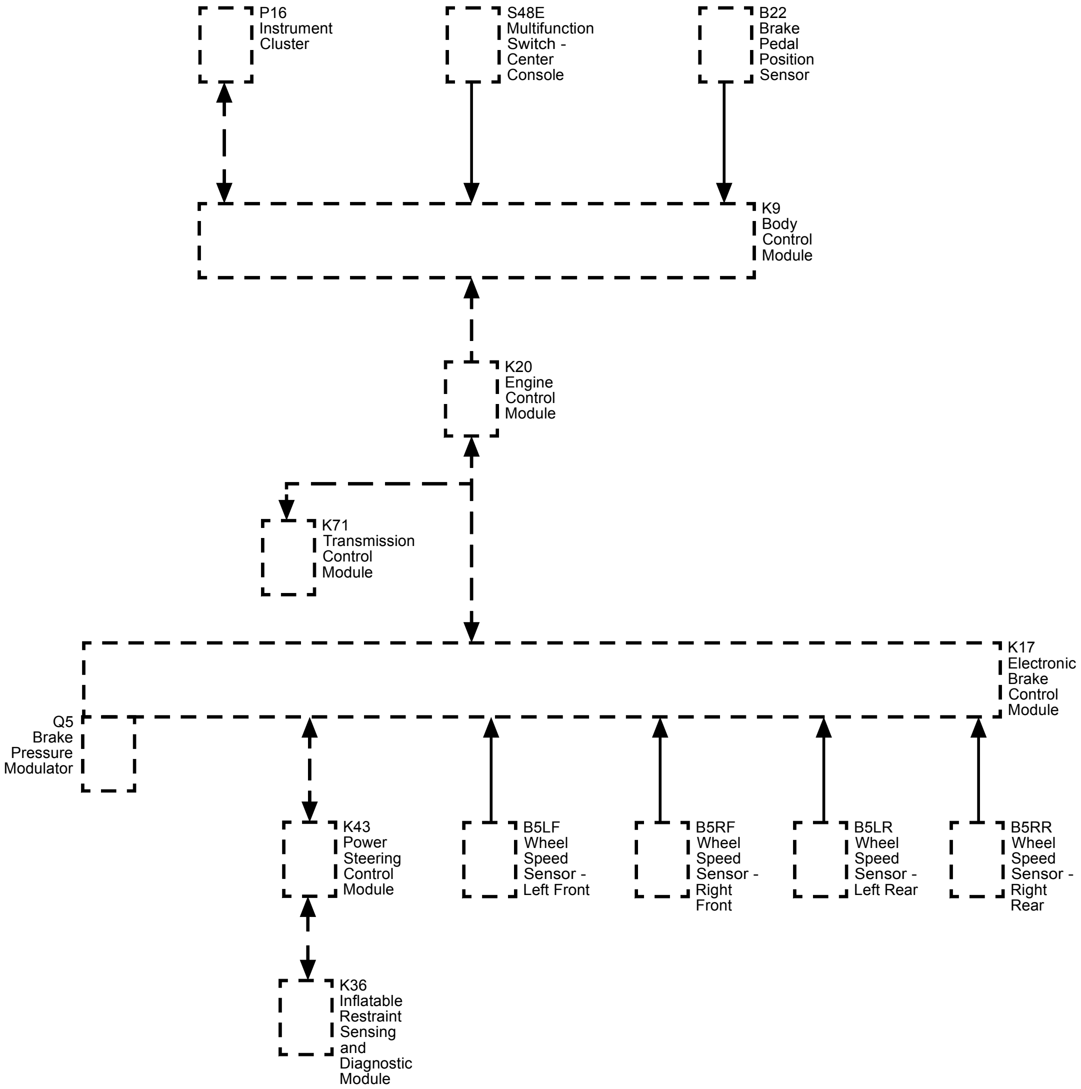
Wheel Speed Signals


B5LF Wheel Speed Sensor - Left Front
B5RF Wheel Speed Sensor - Right Front
B5LR Wheel Speed Sensor - Left Rear
B5RR Wheel Speed Sensor - Right Rear
1
2
1
2
1
2
1
2
7064 GY/WH
830 GY
7065 GY/BN
872 YE
7127 GY/BK
884 L-BU
7128 GY/YE
882 VT
9
9
9
9
36
37
27
26
11
29
30
34
33
12V
12V
12V
12V
K17 Electronic Brake Control Module

Description and Operation

ABS Description and Operation

ABS D&O Block Diagram


P16
Instrument
Cluster
S48E
Multifunction
Switch -
Center
Console
B22
Brake
Pedal
Position
Sensor
K9
Body
Control
Module
K20
Engine
Control
Module
K71
Transmission
Control
Module
K17
Electronic
Brake
Control
Module
Q5
Brake
Pressure
Modulator
K43
Power
Steering
Control
Module
B5LF
Wheel
Speed
Sensor -
Left Front
B5RF
Wheel
Speed
Sensor -
Right
Front
B5LR
Wheel
Speed
Sensor -
Left Rear
B5RR
Wheel
Speed
Sensor -
Right
Rear
K36
Inflatable
Restraint
Sensing
and
Diagnostic
Module

This vehicle is equipped with a Continental Teves Mk100 ABS, traction control, electronic stability control and a hydraulic brake system with diagonal brake circuit split.

The electronic brake control module and the brake pressure modulator is serviced separately. The brake pressure modulator uses a four circuit configuration to control hydraulic pressure to each wheel independently.

Depending on options, the following vehicle performance enhancement systems are provided.

- ABS
- Auto dry brakes
- Traction control
- Stability control
- Dynamic rear proportioning
- Hill hold start assist
- Hydraulic brake assist
- Intelligent brake assist
- Optimized hydraulic braking system

The following components are involved in the operation of the above systems:

- Electronic brake control—The electronic brake control module controls the system functions and detects failures. It supplies voltage to the solenoid valves and pump motor.

- Brake pressure modulator—The brake pressure modulator contains the following components:
  - Hydraulic pump with pump motor
  - Four isolation valves
  - Four dump valves
  - Two traction/stability control supply valves
  - Two traction/stability control isolation valves
  - Brake pressure sensor
- Multi-axis acceleration sensor—The yaw rate, lateral acceleration and longitudinal acceleration sensors are combined into one multi-axis acceleration sensor, internal to the inflatable restraint sensing and diagnostic module.
- Steering wheel angle sensor—This sensor measures the rotation angle, angle velocity and direction of the steering wheel, providing serial data message inputs to the electronic brake control module. The steering wheel angle sensor signal is used to calculate the intended driving direction. This sensor is internal to the electric power steering gear.
- Traction control switch—The traction control system is manually disabled or enabled by pressing the traction control switch.
- Traction/Stability control switch—The electronic stability control is manually disabled or enabled by pressing and holding the traction control switch for five seconds.
- Active wheel speed sensors—The electronic brake control module sends a signal voltage to each wheel speed sensor. As the wheel spins, the wheel speed sensor produces an alternating current square wave signal. The electronic brake control module uses the frequency of the square wave signal to calculate the wheel speed.

Power-Up-Self Test

The electronic brake control module is able to detect many malfunctions whenever the ignition is ON. However, certain failures cannot be detected unless active diagnostic tests are performed on the components. Shorted solenoid coil or motor windings, for example, cannot be detected until the components are commanded ON by the electronic brake control module. Therefore, a power-up self-test is performed to verify correct operation of system components. The electronic brake control module performs the first phase of the power-up self-test when the ignition is first turned ON. This phase consists of internal self-testing of the electronic brake control module along with electrical checks of system sensors and circuits.

Initialization Sequence

The initialization sequence cycles each solenoid valve and the pump motor, as well as the necessary relays, for approximately thirty milliseconds to check component operation. The electronic brake control module sets a DTC if any error is detected. The initialization sequence may be heard and felt while it is taking place, and is considered part of normal system operation. The active test is initiated by the electronic brake control module at the start of the ignition cycle and the speed of the fastest wheel exceeds 10 km/h (7 MPH).

ABS

When wheel slip is detected during a brake application, an ABS event occurs. During ABS braking, hydraulic pressure in the individual wheel circuits is controlled to prevent any wheel from slipping. A separate hydraulic line and specific solenoid valves are provided for each wheel. The ABS can decrease, hold, or increase hydraulic pressure to each wheel. The ABS does not, however, increase hydraulic pressure above the amount which is transmitted by the master cylinder during braking.

During ABS braking, a series of rapid pulsations is felt in the brake pedal. These pulsations are caused by the rapid changes in position of the individual solenoid valves as the electronic brake control module responds to wheel speed sensor inputs and attempts to prevent wheel slip. These pedal pulsations are present only during ABS braking and stop when normal braking is resumed or when the vehicle comes to a stop. A ticking or popping noise may also be heard as the solenoid valves cycle rapidly. During ABS braking on dry pavement, intermittent chirping noises may be heard as the tires approach slipping. These noises and pedal pulsations are considered normal during ABS operation.

Vehicles equipped with ABS may be stopped by applying normal force to the brake pedal. Brake pedal operation during normal braking is no different than that of previous non ABS systems. Maintaining a constant force on the brake pedal provides the shortest stopping distance while maintaining vehicle stability. The typical ABS activation sequence is as follows.

Pressure Hold

The electronic brake control module closes the isolation valve and keeps the dump valve closed in order to isolate the slipping wheel when wheel slip occurs. This holds the pressure steady on the brake so that the hydraulic pressure does not increase or decrease.

Pressure Decrease

If a pressure hold does not correct the wheel slip condition, a pressure decrease occurs. The electronic brake control module decreases the pressure to individual wheels during deceleration when wheel slip occurs. The isolation valve is closed and the dump valve is opened. The excess fluid is stored in the accumulator until the pump can return the fluid to the master cylinder or fluid reservoir.

Pressure Increase

After the wheel slip is corrected, a pressure increase occurs. The electronic brake control module increases the pressure to individual wheels during deceleration in order to reduce the speed of the wheel. The isolation valve is opened and the dump valve is closed. The increased pressure is delivered from the master cylinder.

Auto Dry Brakes

The auto dry brakes work in tandem with the automatic rain sense windshield wiper system. The auto dry brakes automatically activates when the windshield wipers are in operation, and the vehicle has been traveling over 32 km/h (20 MPH) continuously for more than 6.4 m (4 mi) without using the cruise control. The operation is initiated by the stability system, when a slight amount of pulsing hydraulic pressure is applied to the brake calipers which in turn applies the brake pads to wipe away water from the brake rotors while the vehicle is in motion.

Traction Control

When drive wheel slip is noted, the electronic brake control module will enter traction control mode.

First, the electronic brake control module requests the engine control module to reduce the amount of torque to the drive wheels via a serial data message. The engine control module reduces torque to the drive wheels and reports the amount of delivered torque.

If the engine torque reduction does not reduce drive wheel slip, the electronic brake control module will actively apply the brakes on the slipping drive wheel. During traction control braking, hydraulic pressure in each drive wheel circuit is controlled to prevent the drive wheels from slipping. The electronic brake control module commands the pump motor and appropriate solenoid valves ON and OFF to apply brake pressure to the slipping wheel.

Traction control can be manually disabled or enabled by pressing the traction control switch.

Stability Control

Stability control provides added stability during aggressive maneuvers. Yaw rate is the rate of rotation about the vehicle's vertical axis. The stability control is activated when the electronic brake control module determines that the desired yaw rate does not match the actual yaw rate as measured by the yaw rate sensor.

The desired yaw rate is calculated by the electronic brake control module using the following inputs:

- Steering wheel position
- Vehicle speed
- Lateral acceleration

The difference between the desired yaw rate and the actual yaw rate is the yaw rate error, which is a measurement of over steer or under steer. When a yaw rate error is detected, the electronic brake control module attempts to correct the vehicle's yaw motion by applying brake pressure to one or more of the wheels. The amount of brake pressure which is applied varies, depending on the correction required. The engine torque may be reduced also, if it is necessary to slow the vehicle while maintaining stability.

Stability control activations generally occur in turns during aggressive driving. When braking during stability control activation, the brake pedal may pulsate.

Stability control can be manually disabled or enabled by pressing and holding the traction control switch for five seconds.

Dynamic Rear Proportioning

The dynamic rear proportioning is a control system that replaces the mechanical proportioning valve. Under certain driving conditions the electronic brake control module will reduce the rear wheel brake pressure by commanding the appropriate solenoid valves ON and OFF.

Hill Hold Start Assist

The hill hold start assist allows the driver to launch the vehicle without a roll back while moving the foot from the brake pedal to the accelerator pedal. The electronic brake control module calculates the brake pressure, which is needed to hold the vehicle on an incline and locks that pressure for a certain time by commanding the appropriate solenoid valves ON and OFF when the brake pedal is released. Hill hold start assist is activated when the electronic brake control module determines that the driver wishes to move the vehicle up-hill, either backwards or forwards.

The following inputs are used for hill hold start assist feature:

- Accelerator pedal position
- Brake switch
- Brake pressure
- Clutch switch, if equipped
- Engine torque
- Longitudinal acceleration
- Reverse gear information
- Vehicle speed

Hydraulic Brake Assist

The hydraulic brake assist function is designed to support the driver in emergency braking situations.

The electronic brake control module receives inputs from the brake pressure sensor. When the electronic brake control module senses an emergency braking situation, it will actively increase the hydraulic brake pressure to a specific maximum by turning the pump motor ON.

Intelligent Brake Assist

The intelligent brake assist function is designed to provide limited braking to help prevent front and rear low speed collisions.

The electronic brake control module receives inputs from the brake pedal position sensor, wheel speed sensors, short range radar and ultrasonic sensors to detect a collision. When the electronic brake control module senses a possible collision, it will actively increase the hydraulic brake pressure to apply the brakes.

Optimized Hydraulic Braking System

With some engines the electronic brake control module monitors the vacuum in the brake booster with a vacuum sensor and controls a brake booster vacuum pump depending on vacuum sensor input. It also has a hydraulic brake boost feature which supplements the brake system to maintain consistent brake performance under conditions of low brake booster vacuum. Low brake booster vacuum conditions can include initial start up after the vehicle has been parked for several hours, very frequent brake stops, or high altitude driving. The hydraulic brake boost system activates only during a brake apply under low vacuum conditions. In this case the electronic brake control module will actively increase and control the hydraulic brake pressure by turning the pump motor ON and the appropriate solenoid valves ON and OFF. When hydraulic brake boost is active, a series of rapid pulsations is felt in the brake pedal.

Driver Information Indicators

Brake Warning Indicator

The instrument cluster turns the brake warning indicator ON when the following occurs:

- The instrument cluster performs the bulb check.
- The electronic brake control module detects a fault and sends a serial data message to the instrument cluster requesting illumination.
- The body control module detects that the park brake is engaged. The instrument cluster receives a serial data message from the body control module requesting illumination.

ABS Indicator

The instrument cluster turns the ABS indicator ON when the following occurs:

- The instrument cluster performs the bulb check.
- The electronic brake control module detects a malfunction which disables the ABS and sends a serial data message to the instrument cluster requesting illumination.

Traction/Stability Control Indicator

The instrument cluster turns the traction/stability control indicator ON when the following occurs:

- The instrument cluster performs the bulb check.
- The electronic brake control module detects a malfunction which disables the traction/stability control and sends a serial data message to the instrument cluster requesting illumination.
- The driver manually disables the traction/stability control by pressing and holding the traction control switch for five seconds. The electronic brake control module sends a serial data message to the instrument cluster requesting illumination.

Traction Control Off Indicator

The instrument cluster turns the traction control off indicator ON when the following occurs:

- The instrument cluster performs the bulb check.
- The driver manually disables the traction control by pressing the traction control switch. The electronic brake control module sends a serial data message to the instrument cluster requesting illumination.

Stability Control Off Indicator

The instrument cluster turns the stability control off indicator ON when the following occurs:

- The instrument cluster performs the bulb check.
- The electronic brake control module sends a serial data message to the instrument cluster requesting illumination.
- The driver manually disables the stability control by pressing and holding the traction control switch for five seconds. The electronic brake control module sends a serial data message to the instrument cluster requesting illumination.

Hill Descent Control Indicator

The instrument cluster turns the hill descent control indicator ON when the following occurs:

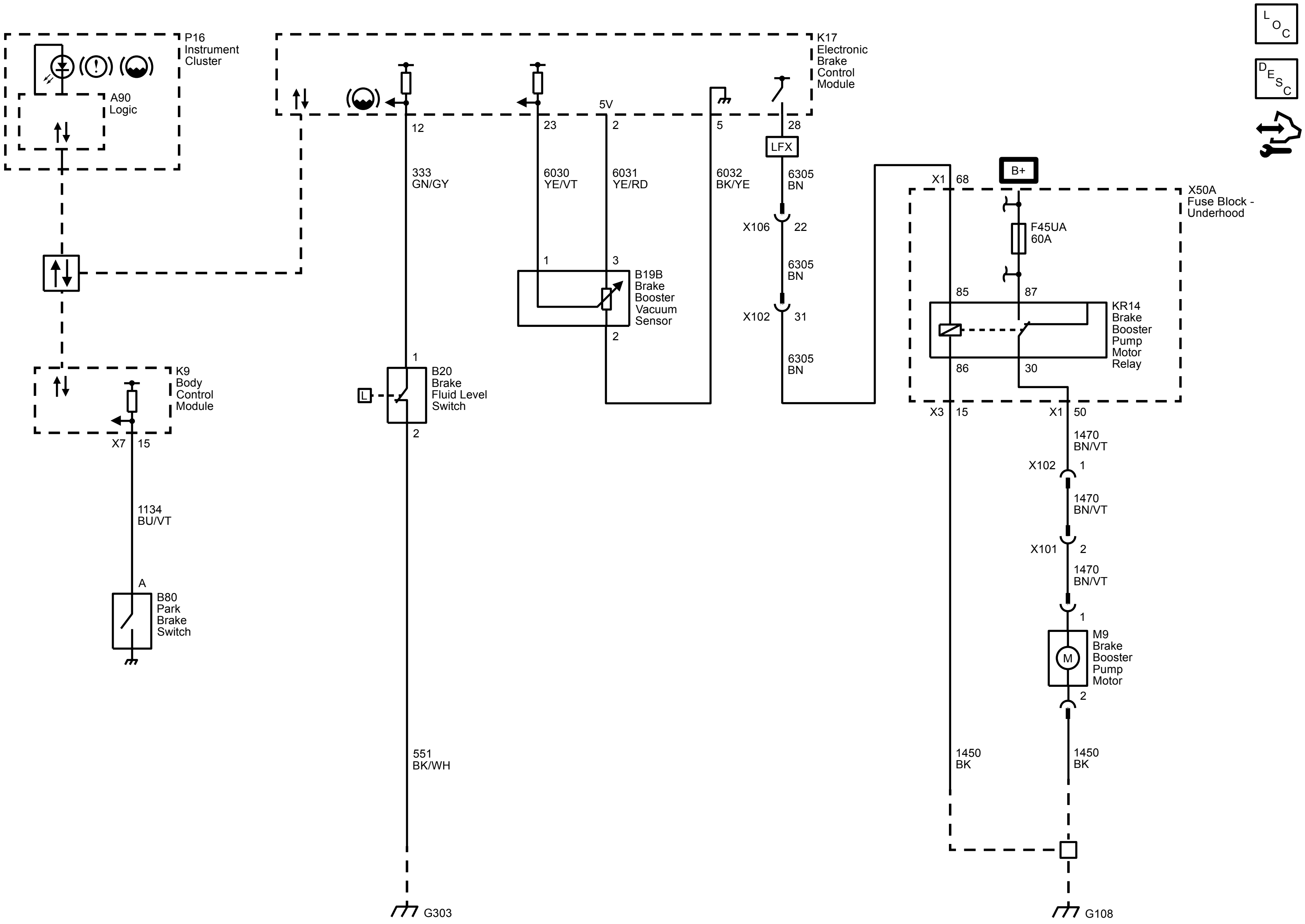
- The instrument cluster performs the bulb check.
- The driver manually enables or disables the hill descent control by pressing the hill descent control switch. The electronic brake control module sends a serial data message to the instrument cluster requesting illumination.

Hydraulic Brakes

Schematic and Routing Diagrams

Hydraulic Brake Schematics

Hydraulic Brakes


P16
Instrument
Cluster
A90
Logic
K17
Electronic
Brake
Control
Module
12
333
GN/GY
23
6030
YE/VT
5V
2
6031
YE/RD
5
6032
BK/YE
28
LFX
6305
BN
X106
22
6305
BN
X102
31
6305
BN
1
3
B19B
Brake
Booster
Vacuum
Sensor
2
1
B20
Brake
Fluid Level
Switch
2
L
K9
Body
Control
Module
X7
15
1134
BU/VT
A
B80
Park
Brake
Switch
551
BK/WH
G303
B+
X1
68
X50A
Fuse Block -
Underhood
F45UA
60A
85
87
KR14
Brake
Booster
Pump
Motor
Relay
86
30
X3
15
X1
50
1470
BN/VT
X102
1
1470
BN/VT
X101
2
1470
BN/VT
1
M
M9
Brake
Booster
Pump
Motor
2
1450
BK
1450
BK
G108
LOC
DESC

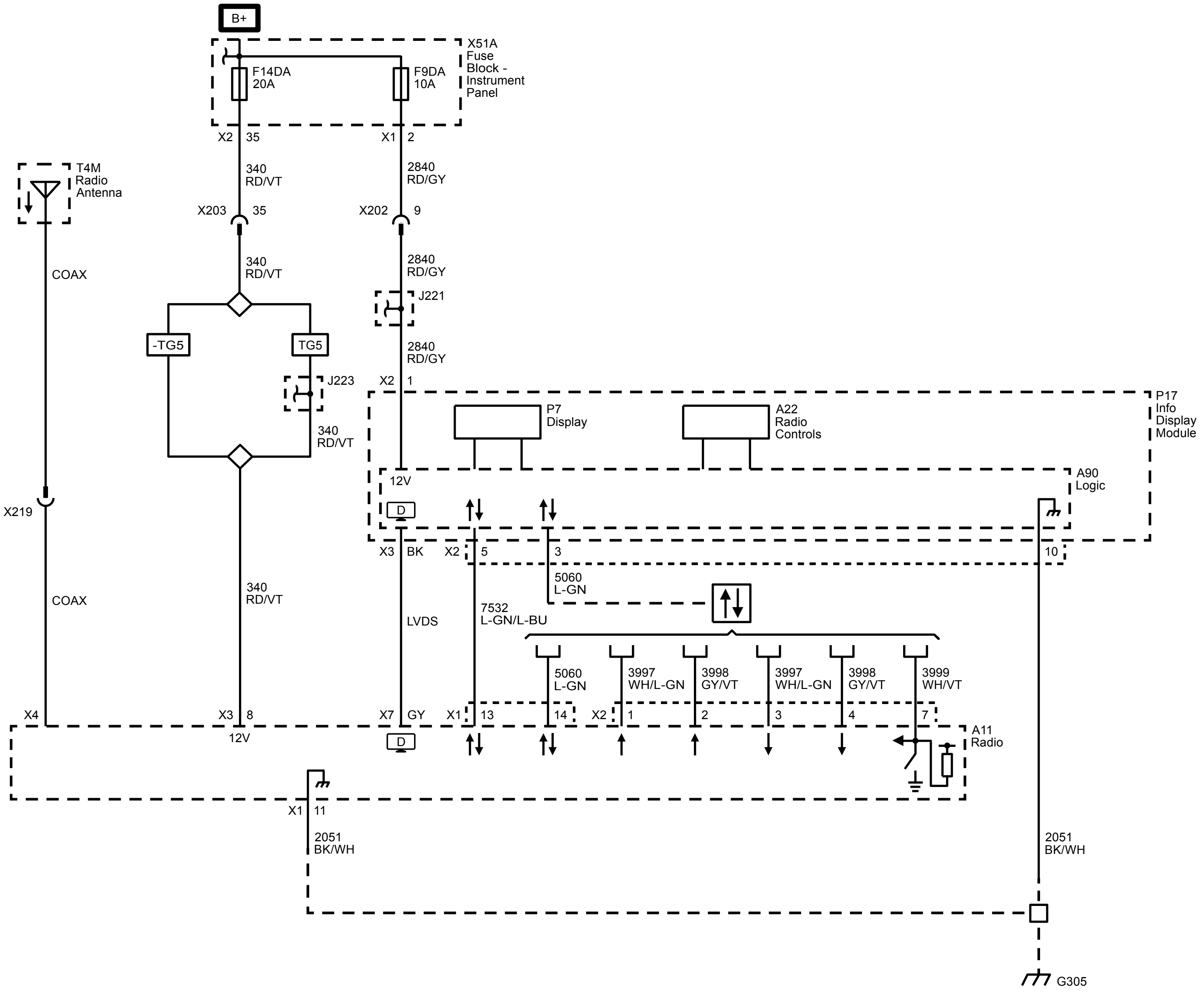
Driver Information and Entertainment

Cellular, Entertainment, and Navigation

Schematic and Routing Diagrams

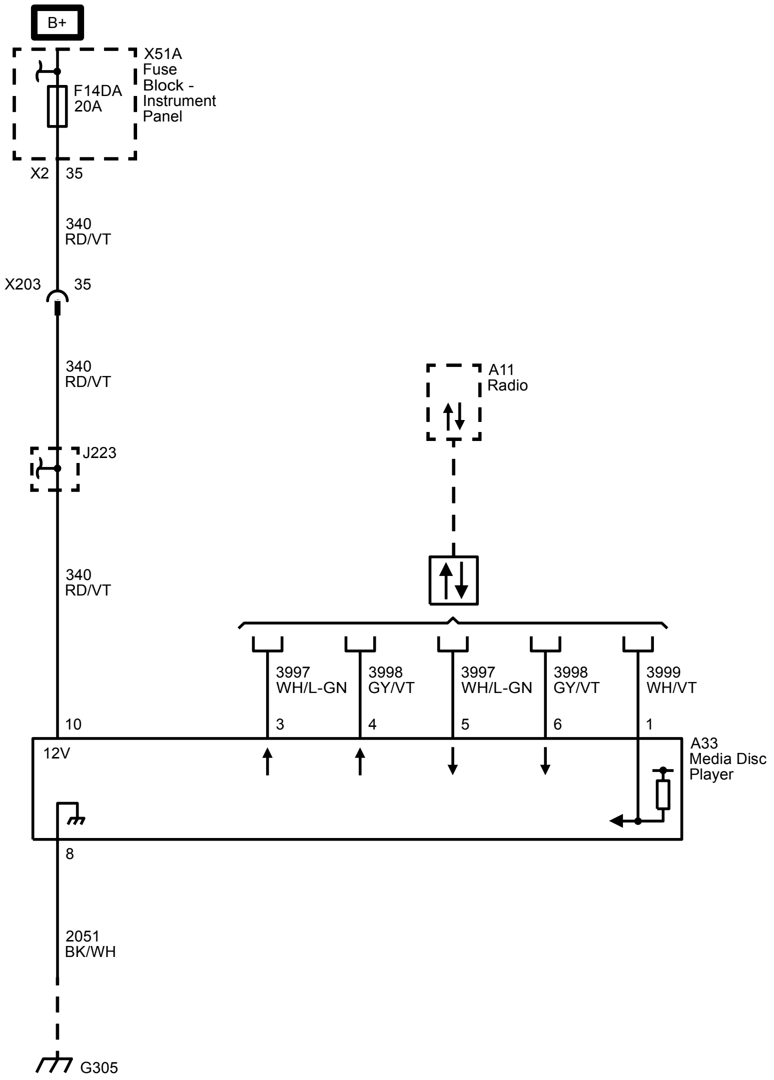
Radio/Navigation System Schematics (IO3)

Radio Power, Ground, Serial Data and Antenna

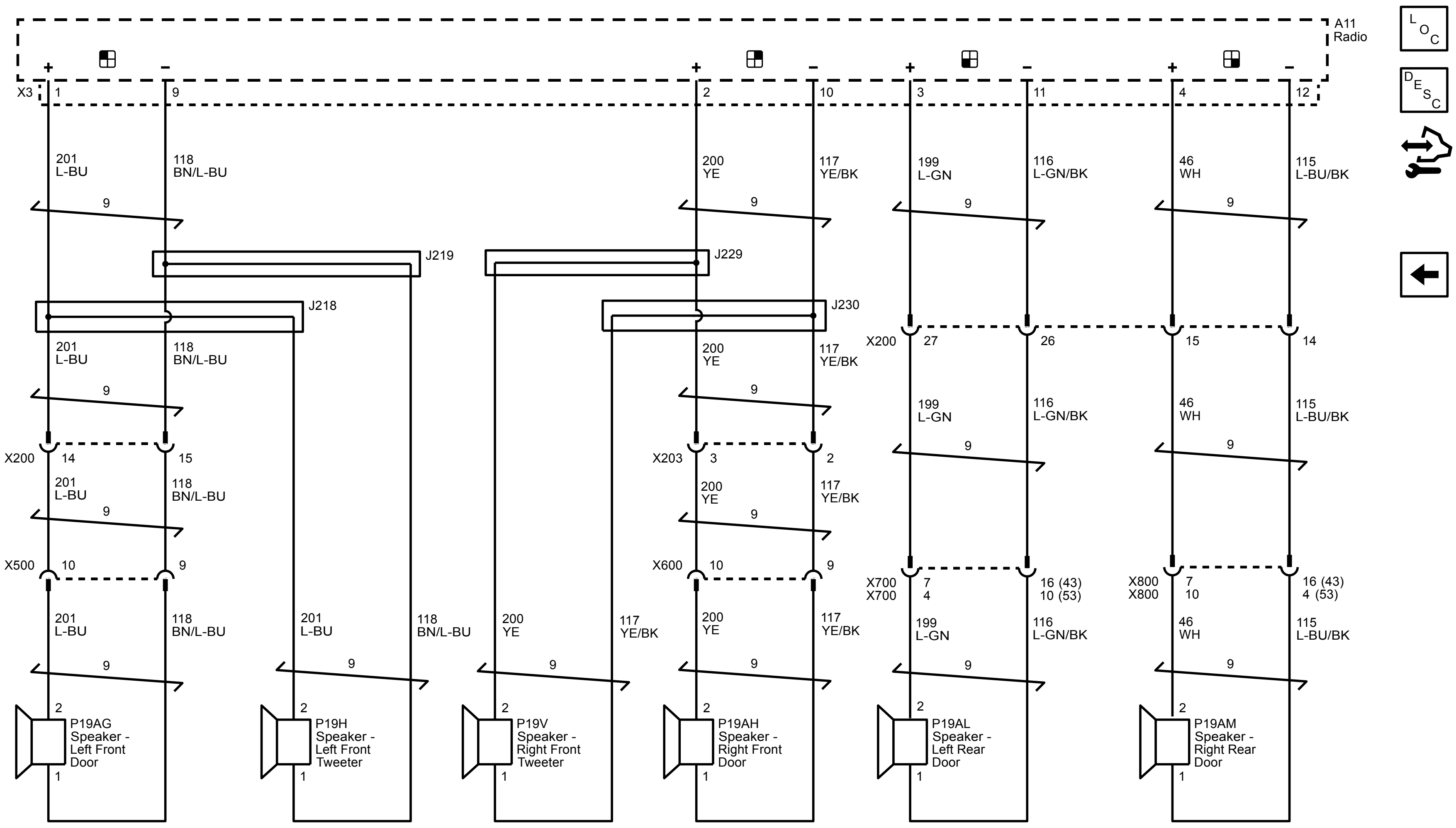


B+
X51A Fuse Block - Instrument Panel
F14DA 20A
F9DA 10A
X2 35
X1 2
340 RD/VT
2840 RD/GY
T4M Radio Antenna
X203 35
X202 9
340 RD/VT
2840 RD/GY
J221
COAX
-TG5
TG5
J223
2840 RD/GY
340 RD/VT
X2 1
P17 Info Display Module
P7 Display
A22 Radio Controls
A90 Logic
12V
D
X219
X3 BK
X2 5
3
10
5060 L-GN
7532 L-GN/L-BU
COAX
340 RD/VT
LVDS
5060 L-GN
3997 WH/L-GN
3998 GY/VT
3997 WH/L-GN
3998 GY/VT
3999 WH/VT
X4
X3 8
12V
X7 GY
D
X1 13
14
X2 1
2
3
4
7
A11 Radio
X1 11
2051 BK/WH
2051 BK/WH
G305

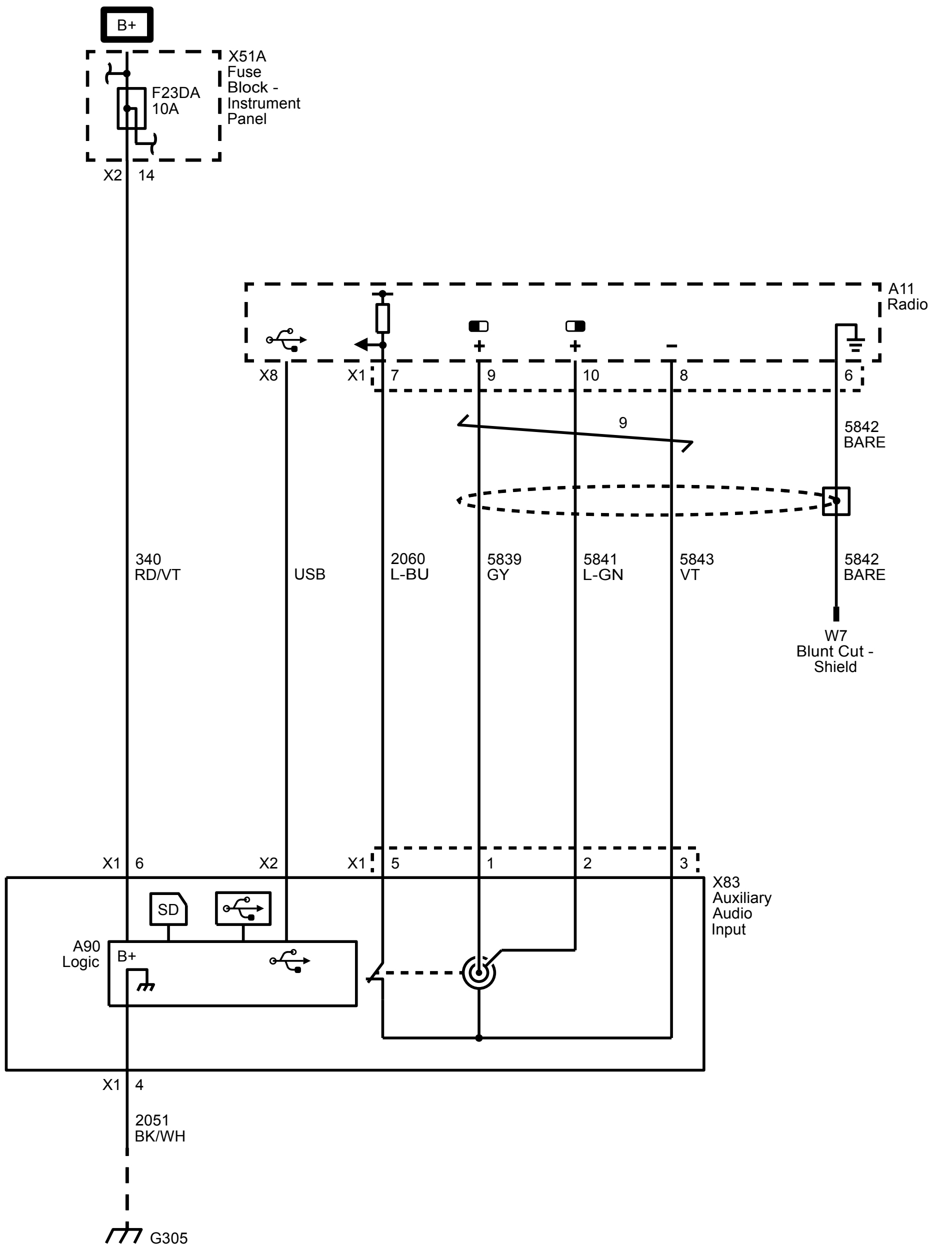
Media Disc Player Power, Ground and Serial Data


B+
X51A
Fuse
Block -
Instrument
Panel
F14DA
20A
X2
35
340
RD/VT
X203
35
340
RD/VT
J223
340
RD/VT
A11
Radio
3997
WH/L-GN
3998
GY/VT
3997
WH/L-GN
3998
GY/VT
3999
WH/VT
10
3
4
5
6
1
12V
A33
Media Disc
Player
8
2051
BK/WH
G305

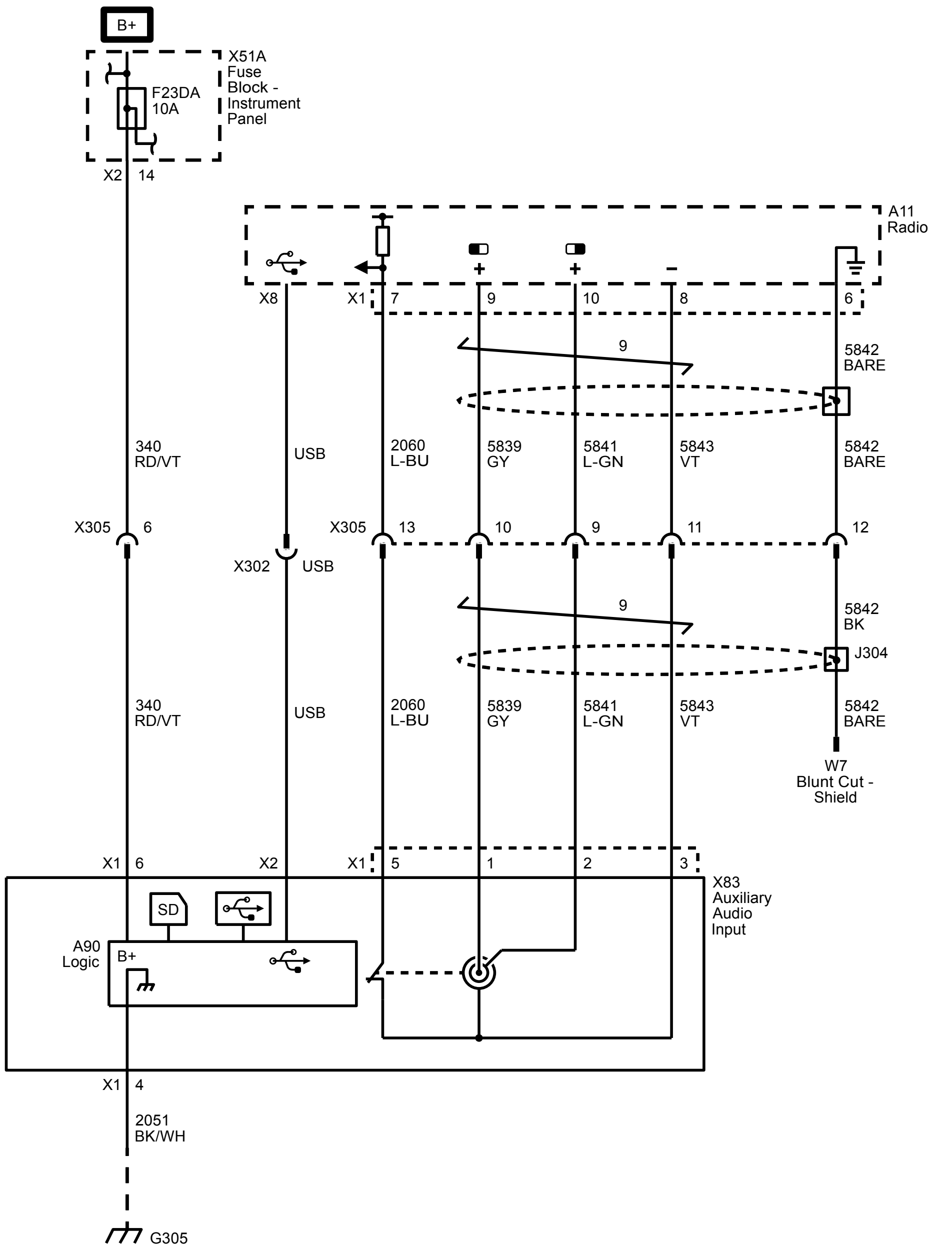
Speakers


A11
Radio
X3
1
9
2
10
3
11
4
12
201
L-BU
118
BN/L-BU
200
YE
117
YE/BK
199
L-GN
116
L-GN/BK
46
WH
115
L-BU/BK
9
J219
J229
J218
J230
X200
27
26
15
14
X200
14
15
X203
3
2
X500
10
9
X600
10
9
X700
X700
7
4
16 (43)
10 (53)
X800
X800
7
10
16 (43)
4 (53)
P19AG
Speaker -
Left Front
Door
P19H
Speaker -
Left Front
Tweeter
P19V
Speaker -
Right Front
Tweeter
P19AH
Speaker -
Right Front
Door
P19AL
Speaker -
Left Rear
Door
P19AM
Speaker -
Right Rear
Door
L
O
C
D
E
S
C

Auxiliary Inputs (MYB)

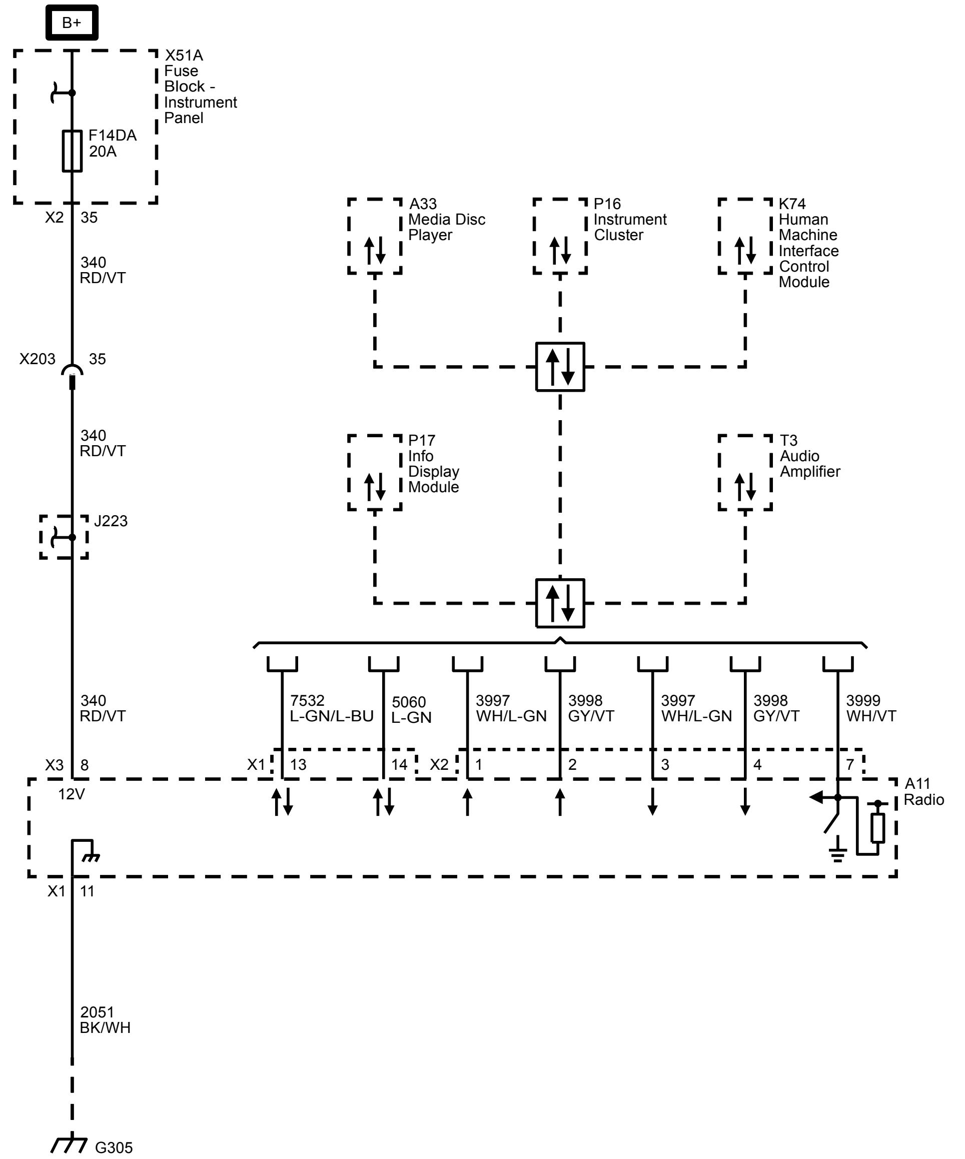

B+
X51A
Fuse
Block -
Instrument
Panel
F23DA
10A
X2
14
A11
Radio
X8
X1
7
9
10
8
6
9
5842
BARE
340
RD/VT
USB
2060
L-BU
5839
GY
5841
L-GN
5843
VT
5842
BARE
W7
Blunt Cut -
Shield
X1
6
X2
X1
5
1
2
3
X83
Auxiliary
Audio
Input
SD
A90
Logic
B+
X1
4
2051
BK/WH
G305

Auxiliary Inputs (N8D)

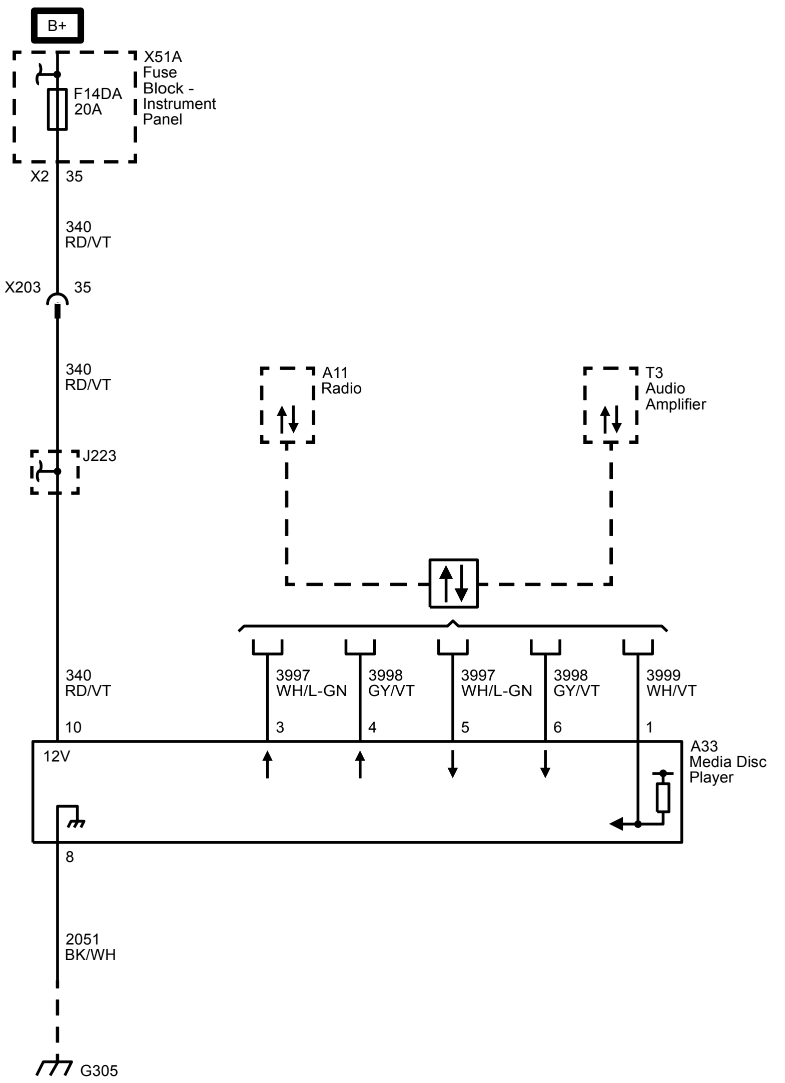

B+
X51A
Fuse
Block -
Instrument
Panel
F23DA
10A
X2 14
A11
Radio
X8
X1 7
9
10
8
6
9
5842
BARE
340
RD/VT
USB
2060
L-BU
5839
GY
5841
L-GN
5843
VT
5842
BARE
X305 6
X305 13
10
9
11
12
X302 USB
9
5842
BK
J304
340
RD/VT
USB
2060
L-BU
5839
GY
5841
L-GN
5843
VT
5842
BARE
W7
Blunt Cut -
Shield
X1 6
X2
X1 5
1
2
3
X83
Auxiliary
Audio
Input
SD
A90
Logic
B+
X1 4
2051
BK/WH
G305

Radio/Navigation System Schematics (IO4, IO5, IO6)

Radio Power, Ground and Serial Data

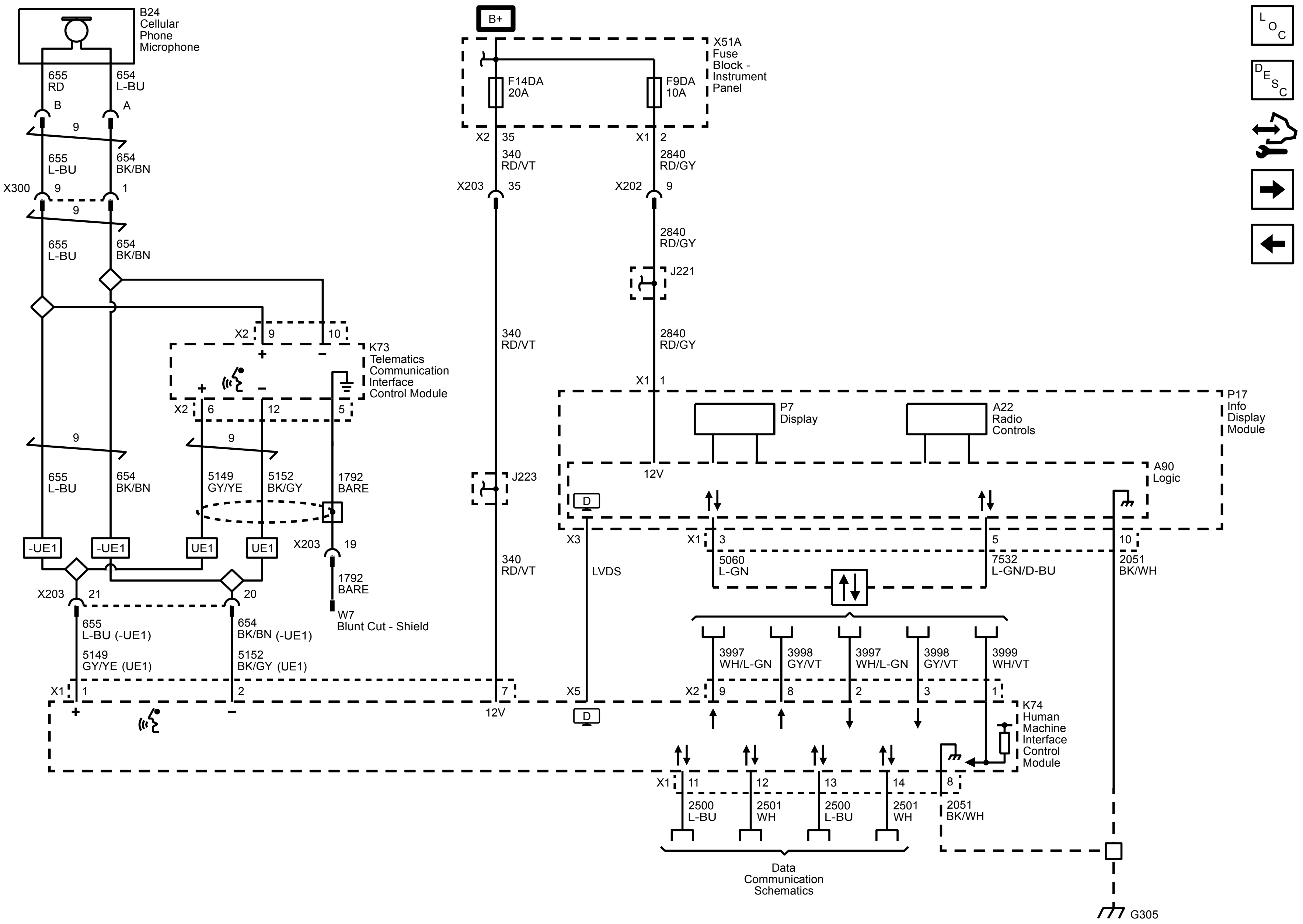

B+
X51A
Fuse
Block -
Instrument
Panel
F14DA
20A
X2
35
340
RD/VT
X203
35
340
RD/VT
J223
340
RD/VT
X3
8
12V
A33
Media Disc
Player
P16
Instrument
Cluster
K74
Human
Machine
Interface
Control
Module
P17
Info
Display
Module
T3
Audio
Amplifier
7532
L-GN/L-BU
5060
L-GN
3997
WH/L-GN
3998
GY/VT
3997
WH/L-GN
3998
GY/VT
3999
WH/VT
X1
13
14
X2
1
2
3
4
7
A11
Radio
X1
11
2051
BK/WH
G305

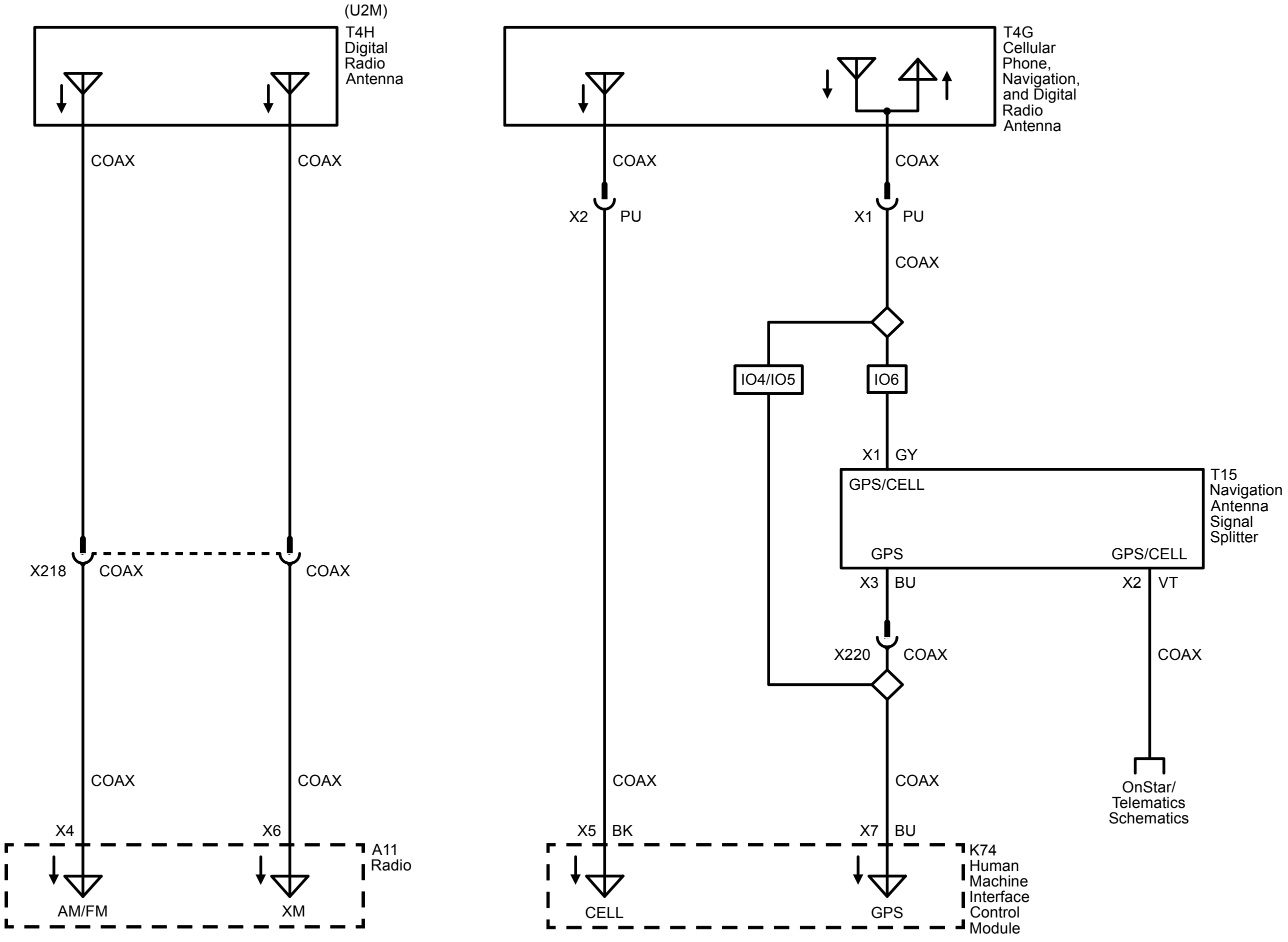
Media Disc Player Power, Ground and Serial Data



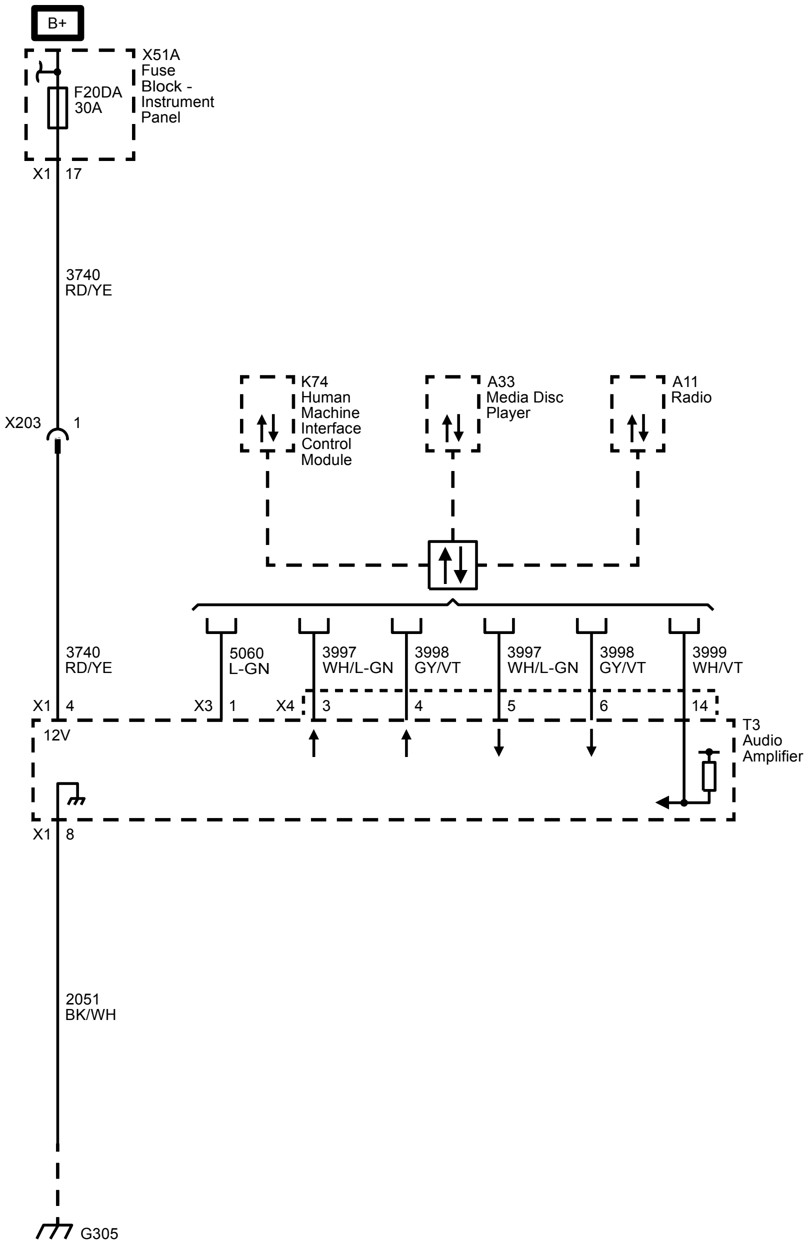
B+
X51A
Fuse
Block -
Instrument
Panel
F14DA
20A
X2
35
340
RD/VT
X203
35
340
RD/VT
J223
A11
Radio
T3
Audio
Amplifier
340
RD/VT
10
3997
WH/L-GN
3
3998
GY/VT
4
3997
WH/L-GN
5
3998
GY/VT
6
3999
WH/VT
1
12V
A33
Media Disc
Player
8
2051
BK/WH
G305

Human Machine Interface, Display, Cellular Microphone, Power, Ground and Serial Data

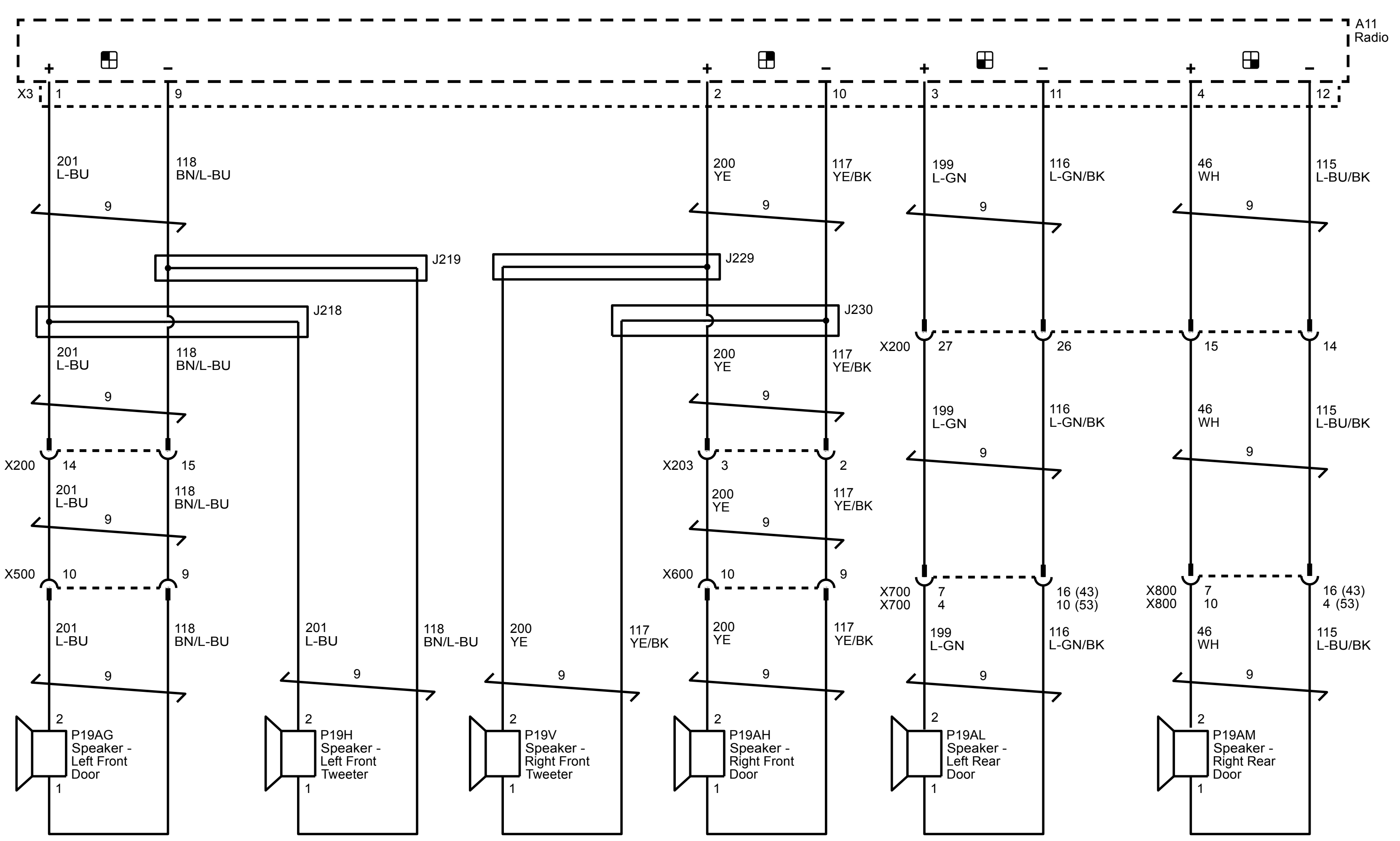

B24
Cellular
Phone
Microphone
655
RD
654
L-BU
B
A
9
655
L-BU
654
BK/BN
X300
9
1
9
655
L-BU
654
BK/BN
X2
9
10
K73
Telematics
Communication
Interface
Control Module
X2
6
12
5
9
9
655
L-BU
654
BK/BN
5149
GY/YE
5152
BK/GY
1792
BARE
-UE1
-UE1
UE1
UE1
X203
19
1792
BARE
W7
Blunt Cut - Shield
X203
21
20
655
L-BU (-UE1)
5149
GY/YE (UE1)
654
BK/BN (-UE1)
5152
BK/GY (UE1)
X1
1
2
B+
X51A
Fuse
Block -
Instrument
Panel
F14DA
20A
F9DA
10A
X2
35
X1
2
340
RD/VT
2840
RD/GY
X203
35
X202
9
2840
RD/GY
J221
340
RD/VT
2840
RD/GY
X1
1
P17
Info
Display
Module
P7
Display
A22
Radio
Controls
A90
Logic
12V
J223
D
X3
X1
3
5
10
340
RD/VT
LVDS
5060
L-GN
7532
L-GN/D-BU
2051
BK/WH
3997
WH/L-GN
3998
GY/VT
3997
WH/L-GN
3998
GY/VT
3999
WH/VT
7
X5
X2
9
8
2
3
1
12V
D
K74
Human
Machine
Interface
Control
Module
X1
11
12
13
14
8
2500
L-BU
2501
WH
2500
L-BU
2501
WH
2051
BK/WH
Data
Communication
Schematics
G305
L
O
C
D
E
S
C

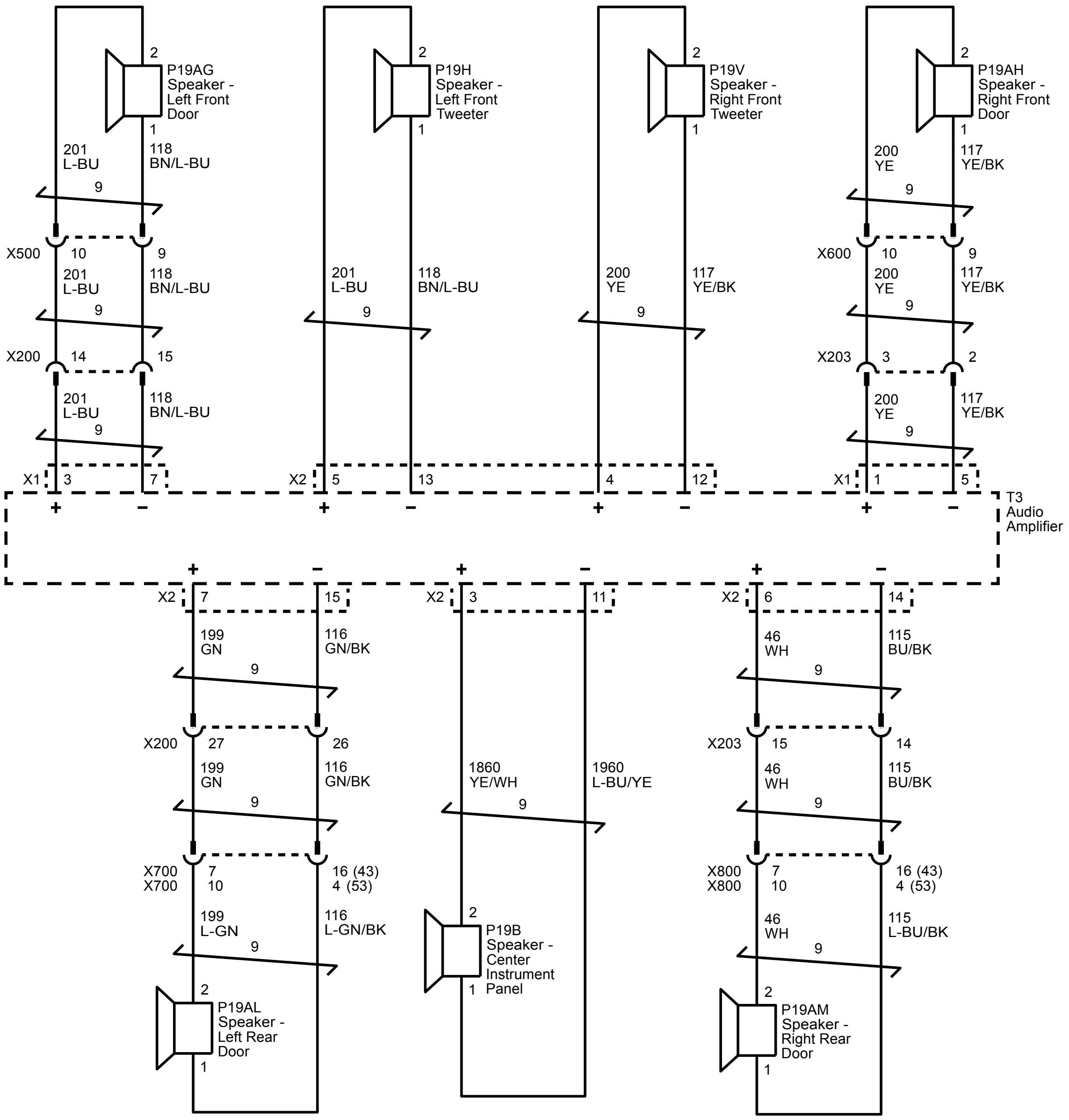

(U2M)
T4H Digital Radio Antenna
COAX
COAX
X218
COAX
COAX
COAX
COAX
X4
X6
A11 Radio
AM/FM
XM
T4G Cellular Phone, Navigation, and Digital Radio Antenna
COAX
COAX
X2
PU
X1
PU
COAX
IO4/IO5
IO6
X1
GY
GPS/CELL
T15 Navigation Antenna Signal Splitter
GPS
GPS/CELL
X3
BU
X2
VT
X220
COAX
COAX
COAX
COAX
OnStar/ Telematics Schematics
X5
BK
X7
BU
K74 Human Machine Interface Control Module
CELL
GPS

Audio Amplifier Power, Ground and Serial Data

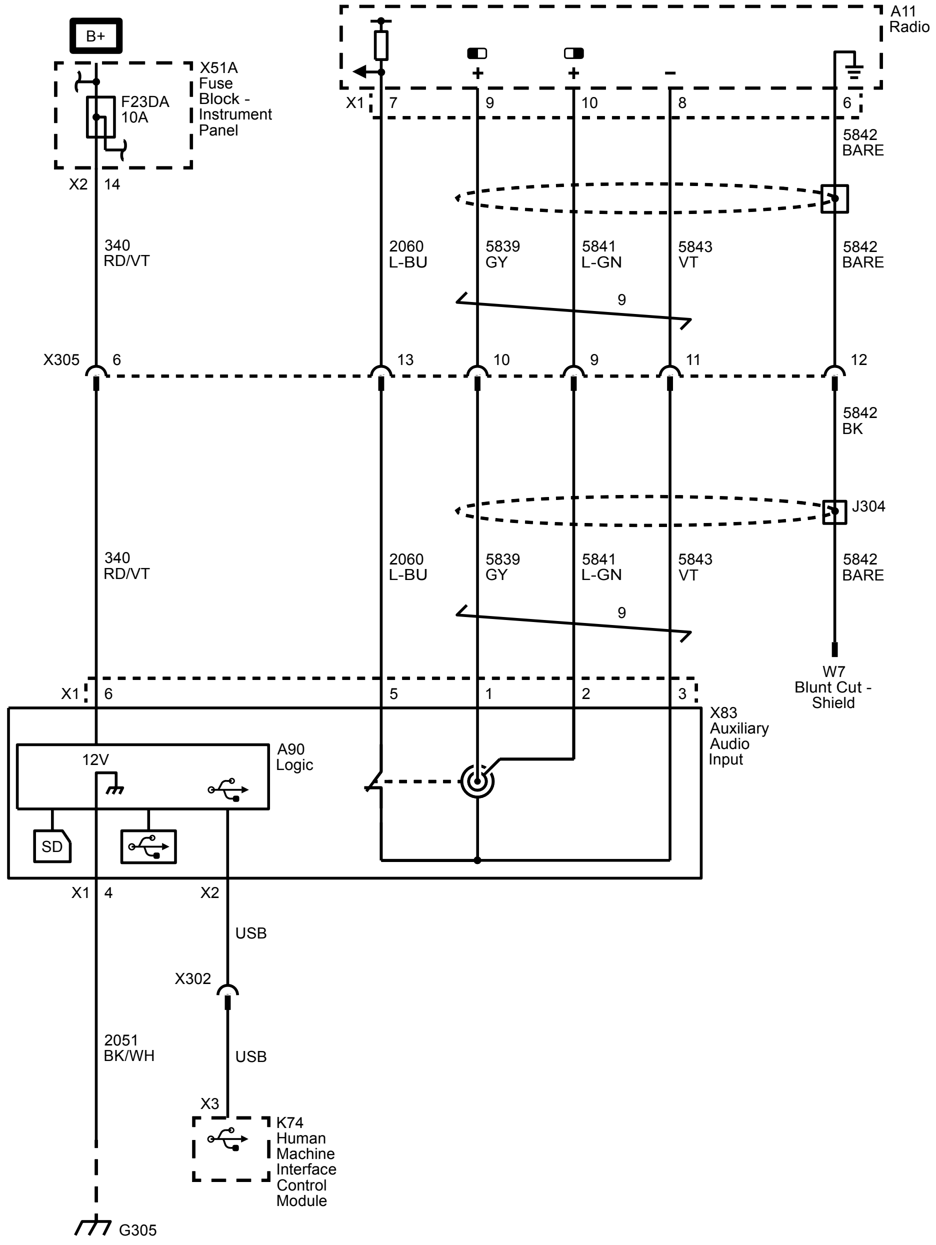

B+
X51A Fuse Block - Instrument Panel
F20DA 30A
X1 17
3740 RD/YE
X203 1
K74 Human Machine Interface Control Module
A33 Media Disc Player
A11 Radio
5060 L-GN
3997 WH/L-GN
3998 GY/VT
3997 WH/L-GN
3998 GY/VT
3999 WH/VT
3740 RD/YE
X1 4
X3 1
X4 3
4
5
6
14
12V
T3 Audio Amplifier
X1 8
2051 BK/WH
G305

Speakers (UQ3)


A11
Radio
X3
+
−
1
9
2
10
3
11
4
12
201
L-BU
118
BN/L-BU
200
YE
117
YE/BK
199
L-GN
116
L-GN/BK
46
WH
115
L-BU/BK
9
J219
J229
J218
J230
X200
27
26
15
14
X200
14
15
X203
3
2
X500
10
9
X600
10
9
X700
X700
7
4
16 (43)
10 (53)
X800
X800
7
10
16 (43)
4 (53)
2
1
P19AG
Speaker -
Left Front
Door
P19H
Speaker -
Left Front
Tweeter
P19V
Speaker -
Right Front
Tweeter
P19AH
Speaker -
Right Front
Door
P19AL
Speaker -
Left Rear
Door
P19AM
Speaker -
Right Rear
Door

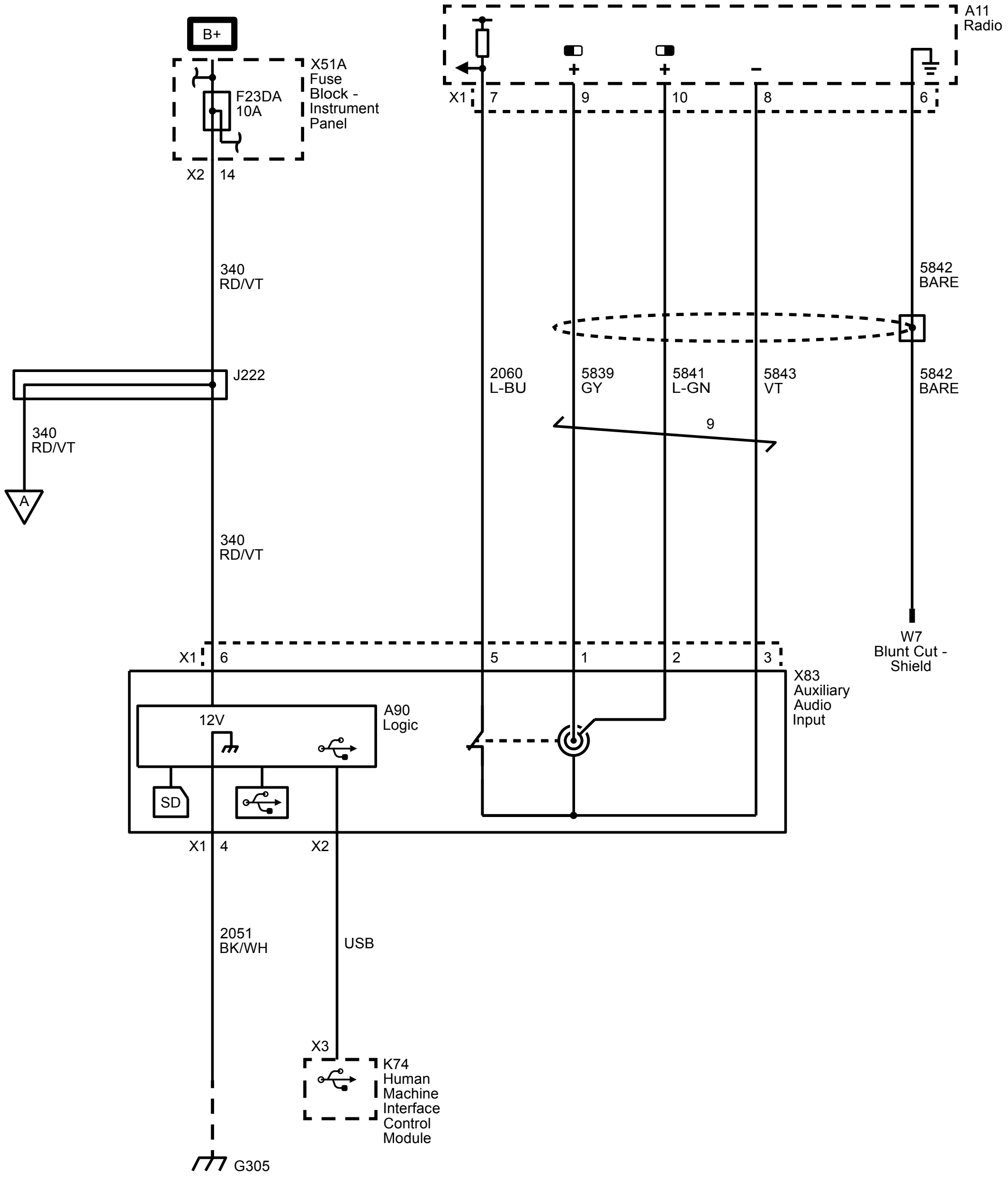

P19AG Speaker - Left Front Door
P19H Speaker - Left Front Tweeter
P19V Speaker - Right Front Tweeter
P19AH Speaker - Right Front Door
2
1
201 L-BU
118 BN/L-BU
200 YE
117 YE/BK
9
X500
10
9
X600
X200
14
15
X203
3
2
201 L-BU
118 BN/L-BU
200 YE
117 YE/BK
X1
3
7
X2
5
13
4
12
X1
1
5
+
−
T3 Audio Amplifier
X2
7
15
X2
3
11
X2
6
14
199 GN
116 GN/BK
46 WH
115 BU/BK
X200
27
26
X203
15
14
1860 YE/WH
1960 L-BU/YE
X700 X700
7 10
16 (43) 4 (53)
X800 X800
7 10
16 (43) 4 (53)
199 L-GN
116 L-GN/BK
46 WH
115 L-BU/BK
P19AL Speaker - Left Rear Door
P19B Speaker - Center Instrument Panel
P19AM Speaker - Right Rear Door

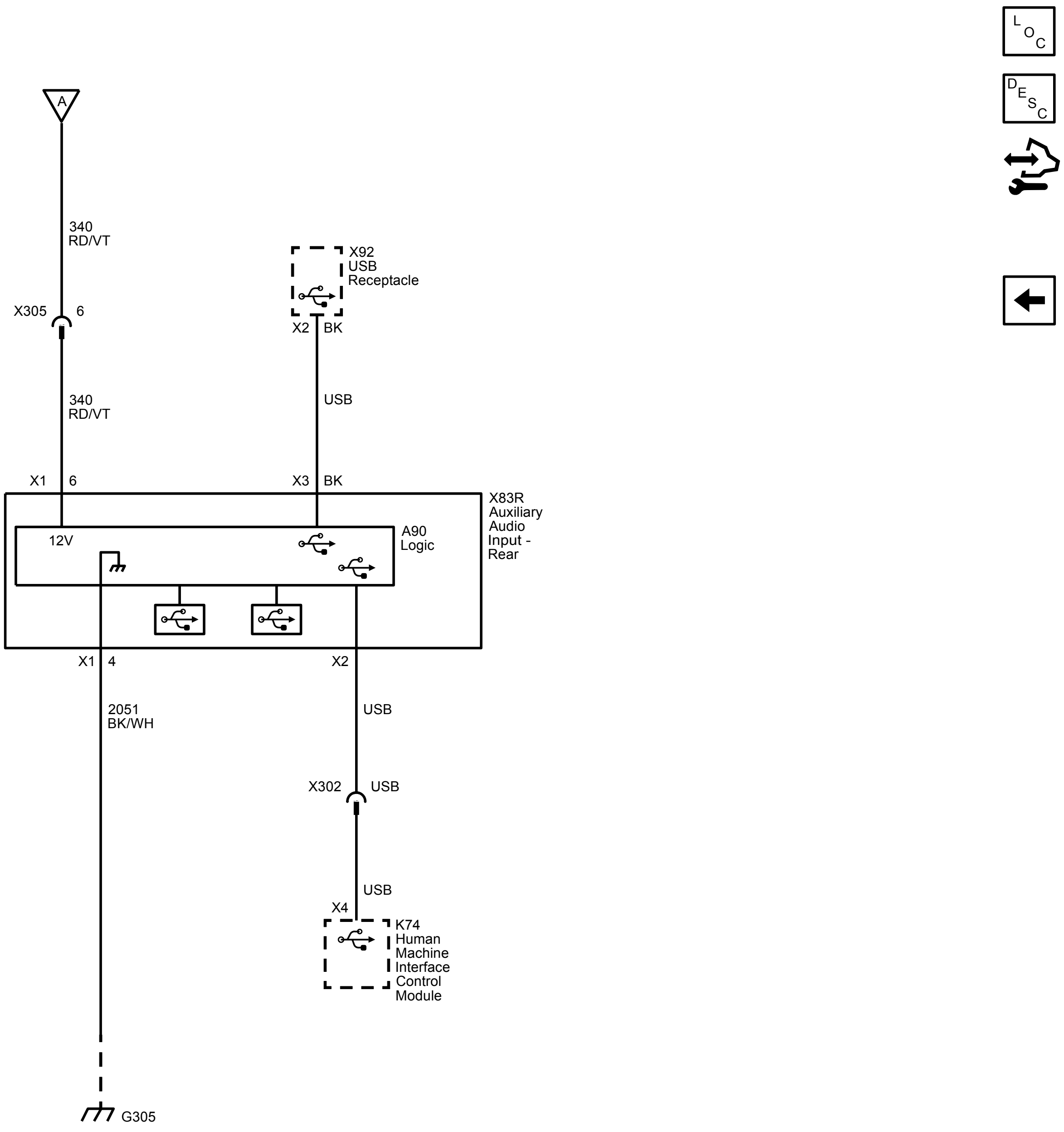
Auxiliary Inputs - Front (IO4 with N8D)


B+
X51A Fuse Block - Instrument Panel
F23DA 10A
X2 14
340 RD/VT
A11 Radio
X1 7
9
10
8
6
5842 BARE
2060 L-BU
5839 GY
5841 L-GN
5843 VT
5842 BARE
9
X305 6
13
10
9
11
12
5842 BK
J304
340 RD/VT
2060 L-BU
5839 GY
5841 L-GN
5843 VT
5842 BARE
9
W7 Blunt Cut - Shield
X1 6
5
1
2
3
X83 Auxiliary Audio Input
12V
A90 Logic
SD
X1 4
X2
USB
X302
2051 BK/WH
USB
X3
K74 Human Machine Interface Control Module
G305

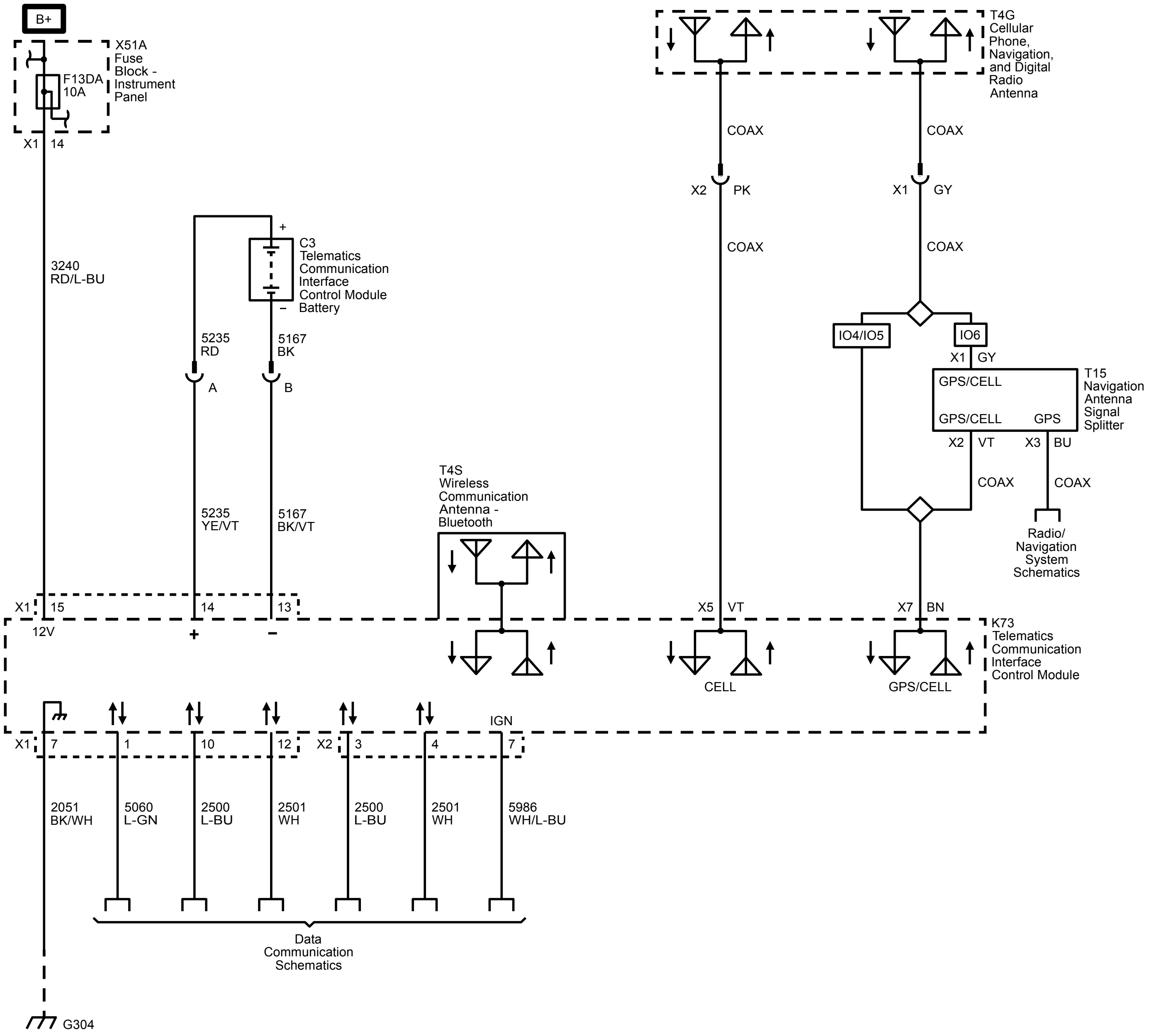
LOC
DESC

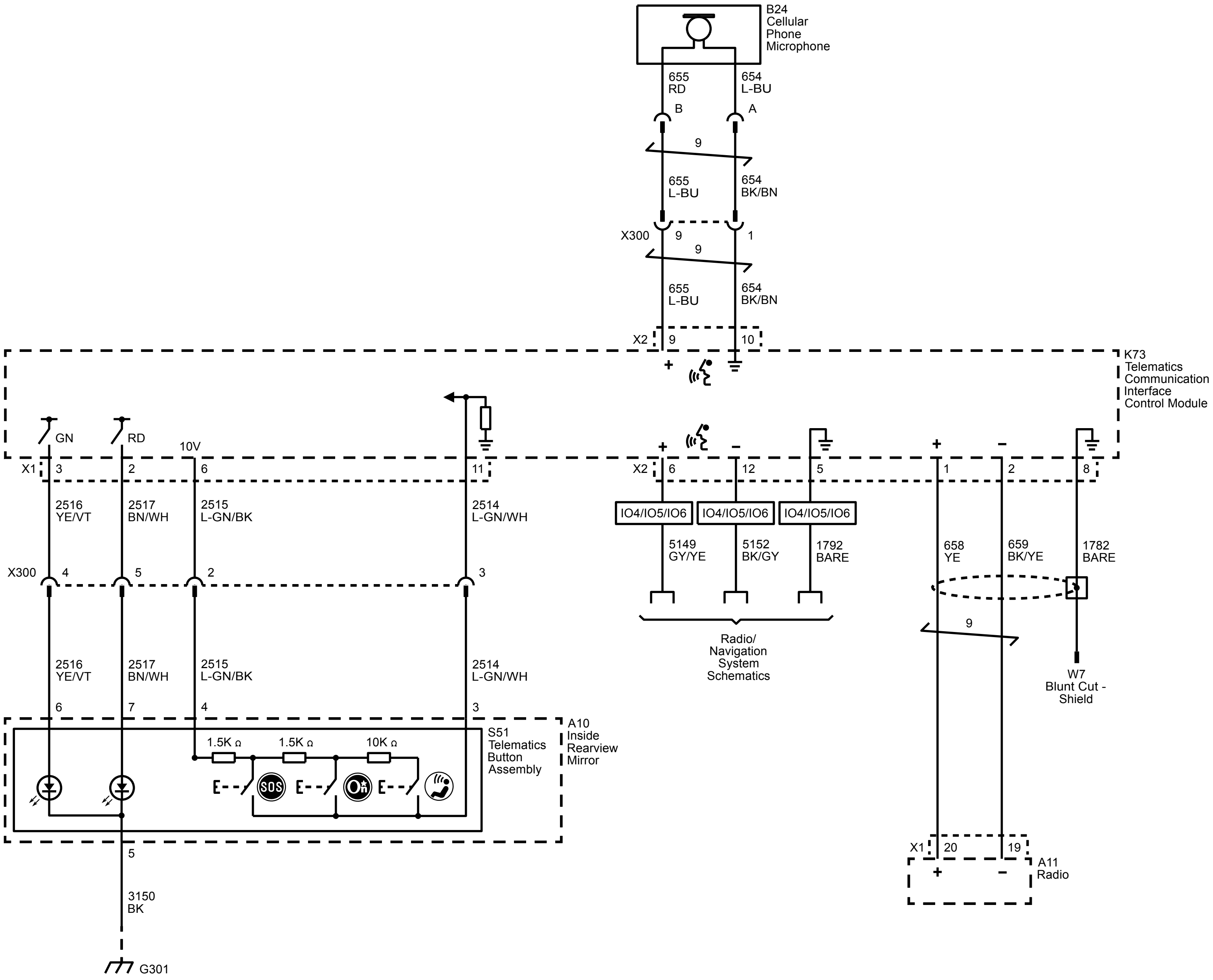
Auxiliary Inputs - Front (MYB)


B+
X51A
Fuse
Block -
Instrument
Panel
F23DA
10A
X2
14
340
RD/VT
J222
340
RD/VT
A
340
RD/VT
A11
Radio
X1
7
9
10
8
6
5842
BARE
2060
L-BU
5839
GY
5841
L-GN
5843
VT
5842
BARE
9
W7
Blunt Cut -
Shield
X1
6
5
1
2
3
X83
Auxiliary
Audio
Input
12V
A90
Logic
SD
X1
4
X2
2051
BK/WH
USB
X3
K74
Human
Machine
Interface
Control
Module
G305


LOC
DESC
A
340
RD/VT
X305
6
340
RD/VT
X92
USB
Receptacle
X2
BK
USB
X1
6
X3
BK
X83R
Auxiliary
Audio
Input -
Rear
12V
A90
Logic
X1
4
X2
2051
BK/WH
USB
X302
USB
USB
X4
K74
Human
Machine
Interface
Control
Module
G305

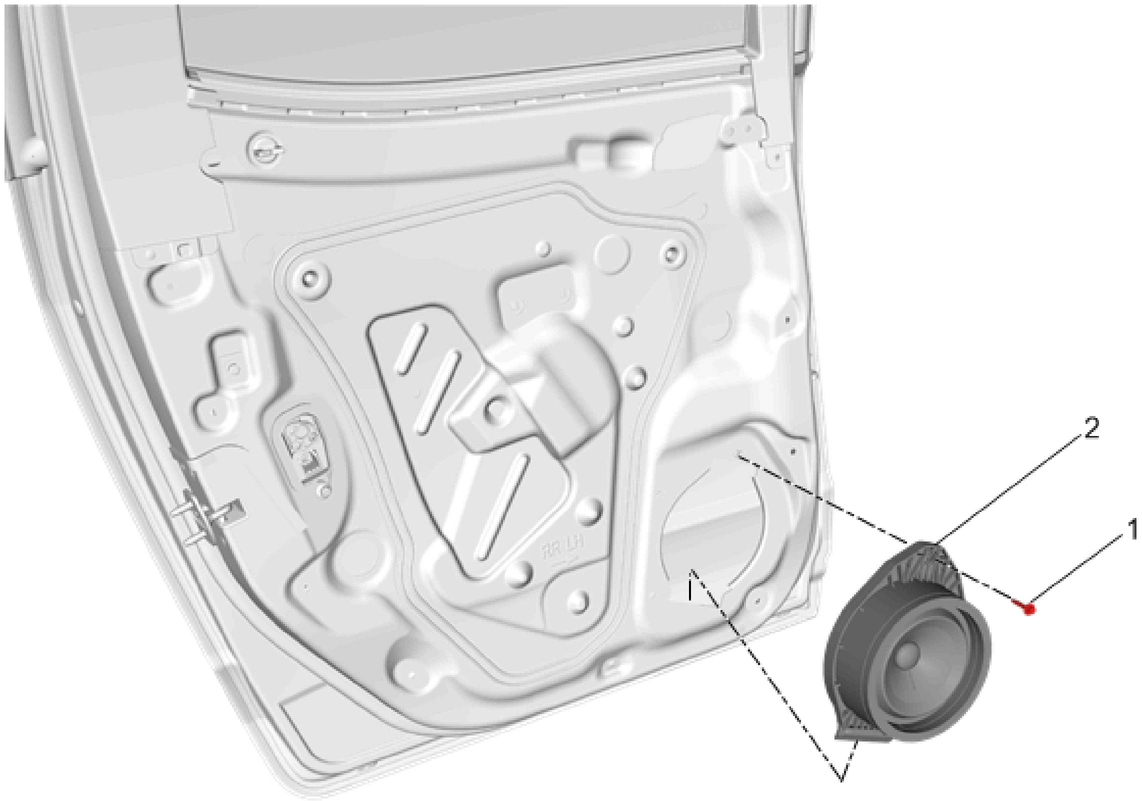
Power, Ground, Serial Data and Antennas (UE1)


B+
X51A Fuse Block - Instrument Panel
F13DA 10A
X1 14
3240 RD/L-BU
+
C3 Telematics Communication Interface Control Module Battery
−
5235 RD
5167 BK
A
B
5235 YE/VT
5167 BK/VT
T4S Wireless Communication Antenna - Bluetooth
T4G Cellular Phone, Navigation, and Digital Radio Antenna
COAX
COAX
X2 PK
X1 GY
COAX
COAX
IO4/IO5
IO6
X1 GY
T15 Navigation Antenna Signal Splitter
GPS/CELL
GPS/CELL
GPS
X2 VT
X3 BU
COAX
COAX
Radio/ Navigation System Schematics
X1 15
14
13
12V
+
−
X5 VT
X7 BN
K73 Telematics Communication Interface Control Module
CELL
GPS/CELL
IGN
X1 7
1
10
12
X2 3
4
7
2051 BK/WH
5060 L-GN
2500 L-BU
2501 WH
2500 L-BU
2501 WH
5986 WH/L-BU
Data Communication Schematics
G304


B24
Cellular
Phone
Microphone
655
RD
654
L-BU
B
A
9
655
L-BU
654
BK/BN
X300
9
1
9
655
L-BU
654
BK/BN
X2
9
10
+
K73
Telematics
Communication
Interface
Control Module
GN
RD
10V
+
−
+
−
X1
3
2
6
11
X2
6
12
5
1
2
8
2516
YE/VT
2517
BN/WH
2515
L-GN/BK
2514
L-GN/WH
IO4/IO5/IO6
IO4/IO5/IO6
IO4/IO5/IO6
5149
GY/YE
5152
BK/GY
1792
BARE
658
YE
659
BK/YE
1782
BARE
X300
4
5
2
3
9
Radio/
Navigation
System
Schematics
W7
Blunt Cut -
Shield
2516
YE/VT
2517
BN/WH
2515
L-GN/BK
2514
L-GN/WH
6
7
4
3
A10
Inside
Rearview
Mirror
S51
Telematics
Button
Assembly
1.5K Ω
1.5K Ω
10K Ω
SOS
5
3150
BK
G301
X1
20
19
+
−
A11
Radio

Repair Instructions

Radio Rear Side Door Speaker Replacement



Radio Rear Side Door Speaker Replacement

<table>
<tr><th>Callout</th><th>Component Name</th></tr>
<tr><td colspan="2">Preliminary Procedure
Remove the rear side door trim. Refer to CELL Link Error - Link target cell (cell ID 163412) is invalid for this publication..</td></tr>
<tr><td>1</td><td>Radio Rear Side Door Speaker Fastener
Caution: Refer to CELL Link Error - Link target cell (cell ID 178169) is invalid for this publication..
Tighten: 2.5 Y (22 lb in)</td></tr>
<tr><td>2</td><td>Radio Rear Side Door Speaker
Procedure
Disconnect the electrical connector.</td></tr>
</table>

Description and Operation

Radio/Audio System Description and Operation (IO3)

The entertainment system on this vehicle may have several different configurations available to it. To determine the specific configuration of the vehicle, please see the Service Parts ID Label, and refer to RPO Code List.

Each item in the list below represents topics covered in detail below.

- Data Communications
- Remote Radio Receiver
- Media Disc Player
- Speaker Operation
- Infotainment Controls and Display
- Antenna System
- Radio Reception
- Theft Deterrent
- Auxiliary Audio Input Jack
- USB Port and SD Card Reader
- Valet Mode
- OnStar ® (if equipped)
- Auto Volume Control

Data Communications

The infotainment system communicates with other devices on multiple serial data networks during operation.

Media Oriented Systems Transport (MOST)

At the core of the infotainment system is the Media Oriented Systems Transport (MOST) bus, a high-speed multimedia network technology. The serial MOST bus uses a ring topology and synchronous data communication to transmit audio, video, data and control information between any devices attached. The MOST bus uses a dual wire structure to communicate among these devices.

A MOST communication enable circuit is also connected to all components on the MOST bus. The MOST enable circuit is used to wake the network and trigger network diagnostics. Any component on the MOST bus may assert the enable circuit, but communications are initiated by the MOST bus master.

The MOST bus master is the device responsible for normal wake up and initialization of communication on the network. The MOST bus master receives vehicle power state information from the vehicle power mode master. The MOST bus master uses this information to control the power state of the infotainment system.

The MOST bus master is also responsible for maintaining known good network configuration. The MOST bus master will be the device that reports MOST bus errors/DTCs.

The Remote Radio Receiver, Human Machine Interface Module, Remote Optical Drive, Audio Amplifier and the Instrument Panel Cluster all communicate on the MOST bus.

Local Interconnect Network (LIN)

The Local Interconnect Network (LIN) Bus is a single wire communication system. This bus is used to exchange information between a master control module and other smart devices which provide supporting functionality.

The Remote Radio Receiver, Human Machine Interface Module, Information Display, Infotainment Controls and the Multifunction (tunnel) Controls all communicate on the LIN bus.

GMLAN

The Remote Radio Receiver, Audio Amplifier, and the Human Machine Interface Module communicate with other components and systems in the vehicle via GMLAN.

Remote Radio Receiver

The radio is the MOST BUS master. The radio also communicates with other components and systems within the vehicle via GMLAN.

The remote radio receiver is responsible for receiving all broadcast audio bands. Broadcast signals from AM, FM, and XM bands are transmitted to the radio via the vehicle antenna systems.

Radio Power

The radio receives battery power and ground from the vehicle harness.

The radio does not use a discrete ignition feed circuit for power moding. The power mode master provides the system power mode to the radio via serial data messages. The power mode master determines the system power mode by processing power mode information from ignition switch inputs. Serial data power modes supported by the radio are OFF, ACCESSORY, RUN, and CRANK REQUEST.

Radio Audio Outputs

When not equipped with an amplifier, the radio outputs all audio signals to the speakers via the vehicle wiring harness.

Media Disc Player

The media disc player is responsible for playing optical media for the infotainment system.

The media disc player receives control information and outputs digital audio over the MOST bus.

The media disc player receives battery power and ground from the vehicle harness.

Speaker Operation

Speakers turn electrical energy into mechanical energy to move air, using a permanent magnet and an electromagnet. The electromagnet is energized when the radio or amplifier (if equipped) delivers current to the voice coil on the speaker. The voice coil will form a north and south pole that will cause the voice coil and the speaker cone to move in relation to the permanent magnet. The current delivered to the speaker is rapidly changing alternating current (A/C). This causes the speaker cone to move in two directions producing sound.

Infotainment Controls and Display

The infotainment display and controls are a separate component from the radio, combined into an assembly. The assembly contains the control knobs and buttons for all audio and HVAC functions and the information display. The assembly is supplied battery voltage and ground from the vehicle harness.

The radio communicates with the assembly via a LIN serial data circuit. Messages communicated include the following:

- Wake-up/power state messages
- Diagnostic information
- Button presses/knob rotations
- Commands for the state of indicators
- Back-lighting dimming level

The radio sends the display digital video data for on-screen display through a dedicated video cable.

HVAC data for controls and status indicators is communicated between the HVAC controls and the HVAC control module with a separate LIN serial data circuit. HVAC status screen information from the HVAC control module is transmitted to the radio on the GMLAN serial data circuit.

Antenna System

Multi-Band Antenna

The multi-band antenna is located on the roof of the vehicle. This antenna is used with the AM/FM radio, as well as GPS and XM signals, if the vehicle has these features. Keep this antenna clear of snow and ice build up for clear reception. If the vehicle has a sunroof, the performance of the system may be affected if the sunroof is open. Loading items onto the roof of the vehicle can interfere with the performance of the system, ensure the multi-band antenna is not obstructed.

The radio antenna is enabled when the radio is turned on. The radio provides battery voltage to the antenna using the center conductor of the antenna coaxial cable. This DC voltage does not affect the incoming radio signal. When a 12 V signal is seen by the antenna on the center conductor of the antenna coax, both AM and FM signals are amplified.

Radio Reception

AM/FM Radio Signal

The radio signal is sent from a broadcast station and is then received by an antenna. The strength of the signal received depends on the following:

- The power output (wattage) of the broadcasting station
- The location of the vehicle (or receiver) relative to the broadcast tower.
- Height of the broadcast antenna
- Height of the receiving antenna
- Obstacles between the tower and the receiver
- Atmospheric conditions
- What band (AM or FM) the station is broadcasting
- Type of antenna and the ground plane

Digital Radio Receiver (If equipped)

The XM satellite receiver is integrated into the radio. XM satellite radio provides digital radio reception. The XM signal is broadcast from two satellites and, where necessary, terrestrial repeaters. The high power satellites allow the antenna to receive the XM signal even when foliage and other partial obstructions block the antennas view of the satellite. Terrestrial repeaters are used in dense urban areas. These repeaters will receive the satellite signal and re-broadcast them at much higher power levels in order to ensure reception in areas with densely packed tall buildings. A service fee is required in order to receive the XM service.

Radio Data System (RDS)

The RDS feature is available only on FM stations that broadcast RDS information. This system relies upon receiving specific information from these stations and only works when the information is available. While the radio is tuned to an FM-RDS station, the station name or call letters display. RDS data is carried in what is known as a "subcarrier". A subcarrier is a frequency that the FM broadcaster is authorized to use to send data that is not audible in the main audio program.

RDS functions will only work with FM broadcast stations that are broadcasting RDS data. Not all FM Broadcast stations broadcast RDS data or offer all of the RDS services.

The information displayed is dependent upon the information broadcast by the particular station. The information may vary greatly between stations. RDS functions may not work properly when reception is weak, reception is of poor quality, or RDS is not implemented properly by the FM Broadcaster. In some cases, a radio station broadcasting incorrect information may cause the RDS features of the radio to appear to work improperly.

With RDS, the radio can do the following:

- Display text information such as: station identification, type of programming, and general information (artist and song title, station messages, call in phone numbers, etc.).
- Seek to stations broadcasting the selected type of programming
- Receive announcements concerning local and national emergencies
- Receive alert warnings of local or national emergencies. When an alert announcement comes on the current radio station, ALERT! displays. You will hear the announcement, even if the volume is low or a CD is playing. If a CD is playing, play stops during the announcement. Alert announcements cannot be turned off. ALERT! is not affected by tests of the emergency broadcast system. This feature is not supported by all RDS stations.

Theft Deterrent

The radio theft deterrent system is intended to disable or limit radio functionality if incorrect vehicle information is received by the radio. The radio disables functionality if the VIN information received by the radio does not match the VIN information that has been learned by the radio. The radio receives this information via serial data. A possible cause of incorrect VIN info could be the radio was originally installed in another vehicle.

The radio has the following theft operating modes as part of the theft deterrent system:

- Normal Mode: The radio has learned a correct VIN sequence and the VIN information received via serial data matches the learned VIN sequence. In this mode the radio has full functionality.
- No VIN Mode: The radio has not received or learned a correct VIN sequence. In this mode the radio has limited functionality.
- Theft Detected Mode: The radio has learned a correct VIN sequence and the VIN information received via serial data does NOT match the learned VIN sequence. In this mode the radio may be disabled or have limited functionality. The radio display will indicate that theft protection is active.

Auxiliary Audio Input Jack (If equipped)

The infotainment system may have a 3.5mm (1/8 in.) auxiliary audio input jack located in the center console. The auxiliary audio input jack interfaces directly with the radio. When a portable audio playback device is connected to the auxiliary jack, an internal switch detects the connection and the radio will switch to AUX as the audio source. Audio signals from the device are sent to the radio from the auxiliary jack via the left, right, and common audio signal circuits.

- When a device is first connected to the 3.5mm (1/8 in.) input jack the infotainment system automatically switches to that device. If an auxiliary device has already been connected, press the AUX or CD/AUX button to select the device.
- Playback of an audio device that is connected to the 3.5mm jack can only be controlled using the controls on the device.
- The volume control on the device may need to be adjusted to ensure sufficient playback volume through the infotainment system.

USB Port and SD Card Reader

The infotainment system has a USB port and SD card reader slot located in the center console. The USB port and the card reader slot interface with a hub device, internal to the auxiliary jack, USB, and memory card receptacle assembly. The auxiliary jack, USB, and memory card receptacle assembly receives fused battery voltage and ground from the harness to power the internal hub device as well as providing additional amperage to power USB devices.

The internal hub device interfaces directly with the radio via a standard USB cable. A Mini type USB connector is used to connect the cable at the USB port and at the radio and at the auxiliary jack, USB, and memory card receptacle. Standard USB male to female connections are typically used for connecting USB cables together where an in-line connection is required. An in-line cable connection is typically found between the console and I/P harness.

USB Port

The USB port allows connectivity to the infotainment system from portable media players or a USB storage device (memory stick/ flash drive). When a device is connected to the USB port, the system detects the device and switches to USB as the audio source. Once connected, the device can be controlled from the radio controls.

Not all portable media player devices or file types are compatible. Connection to USB HUB devices is not supported.

Refer to the owner’s manual for information on USB devices, control, and operation.

SD Card Reader

The infotainment system uses the SD card reader as a mass storage device, similar to a USB storage device.

Refer to the owners manual for information on media types supported via the SD card reader.

Valet Mode

Valet Mode is a customer enabled feature of the infotainment system, found in the settings menu, if equipped. The customer creates and inputs a four digit code using the infotainment controls. Confirming the code and selecting LOCK will lock the infotainment system, steering wheel controls and other vehicle features, dependant on vehicle equipment. The vehicle will remain in valet mode until the same four digit code is reentered.

In the event that the four digit code is forgotten, the scan tool can be used to clear the Valet Mode Code.

OnStar ® (If equipped)

When OnStar is activated, a serial data message is sent to the radio that activates a software program. When the software begins its process, the fade goes to the front, Bass and Treble are set to the mid range, the outputs are mono, and the audio source is OnStar. OnStar takes priority over any other audio source. All of these actions are preset values stored in the radio.

For additional OnStar information, refer to CELL Link Error - Link target cell (cell ID 149754) is invalid for this publication..

Auto Volume Control

With auto volume control, the audio system will adjust automatically to make up for road and wind noise as you drive, by increasing the volume as vehicle speed increases. To use auto volume control, set the volume at the desired level, and then select either Low, Medium, or High. To turn auto volume control off, select the Off screen button.

Radio/Audio System Description and Operation (104/105/106)

The entertainment system on this vehicle may have several different configurations available to it. To determine the specific configuration of the vehicle, please see the Service Parts ID Label, and refer to RPO Code List.

Each item in the list below represents topics covered in detail below.

- Data Communications
- Remote Radio Receiver
- Human Machine Interface Module
- Media Disc Player
- Audio Amplifier (If equipped)
- Speaker Operation
- Infotainment Controls and Display
- Antenna System
- Radio Reception
- Theft Deterrent
- Bluetooth ® (if equipped)
- Applications (if equipped)
- Auxiliary Inputs
- Navigation System Components and Features (if equipped)
- Valet Mode
- OnStar ® (if equipped)
- Steering Wheel Controls
- Auto Volume Control

Data Communications

The infotainment system communicates with other devices on multiple serial data networks during operation.

Media Oriented Systems Transport (MOST)

At the core of the infotainment system is the Media Oriented Systems Transport (MOST) bus, a high-speed multimedia network technology. The serial MOST bus uses a ring topology and synchronous data communication to transmit audio, video, data and control information between any devices attached. The MOST bus uses a dual wire structure to communicate among these devices.

A MOST communication enable circuit is also connected to all components on the MOST bus. The MOST enable circuit is used to wake the network and trigger network diagnostics. Any component on the MOST bus may assert the enable circuit, but communications are initiated by the MOST bus master.

The MOST bus master is the device responsible for normal wake up and initialization of communication on the network. The MOST bus master receives vehicle power state information from the vehicle power mode master. The MOST bus master uses this information to control the power state of the infotainment system.

The MOST bus master is also responsible for maintaining known good network configuration. The MOST bus master will be the device that reports MOST bus errors/DTCs.

The Remote Radio Receiver, Human Machine Interface Module, Remote Optical Drive, Audio Amplifier and the Instrument Panel Cluster all communicate on the MOST bus.

Local Interconnect Network (LIN)

The Local Interconnect Network (LIN) Bus is a single wire communication system. This bus is used to exchange information between a master control module and other smart devices which provide supporting functionality.

The Remote Radio Receiver, Human Machine Interface Module, Information Display, Infotainment Controls and the Multifunction (tunnel) Controls all communicate on the LIN bus.

GMLAN

The Remote Radio Receiver, Audio Amplifier, and the Human Machine Interface Module communicate with other components and systems in the vehicle via GMLAN.

Remote Radio Receiver

The radio is the MOST BUS master. The radio also communicates with other components and systems within the vehicle via GMLAN.

The remote radio receiver is responsible for receiving all broadcast audio bands. Broadcast signals from AM, FM, and XM bands are transmitted to the radio via the vehicle antenna systems.

Radio Power

The radio receives battery power and ground from the vehicle harness.

The radio does not use a discrete ignition feed circuit for power moding. The power mode master provides the system power mode to the radio via serial data messages. The power mode master determines the system power mode by processing power mode information from ignition switch inputs. Serial data power modes supported by the radio are OFF, ACCESSORY, RUN, and CRANK REQUEST.

Radio Audio Outputs

When not equipped with an amplifier, the radio outputs all audio signals to the speakers via the vehicle wiring harness.

When equipped with an amplifier, the radio outputs all audio signals digitally over the MOST bus.

Human Machine Interface Module

The human machine interface module is responsible for the following: Video for the infotainment display, Bluetooth ®, USB, memory card reader, and speech recognition functions.

The human machine interface module communicates with the info display module via the LIN bus for control information, touch communications and dimming level. Digital video data is sent to the display through a dedicated video cable.

Media Disc Player

The media disc player is responsible for playing optical media for the infotainment system.

The media disc player receives battery power and ground from the vehicle harness.

The media disc player receives control information and outputs digital audio over the MOST bus.

Audio Amplifier (If equipped)

Amplifier Interface

The amplifier receives battery power and ground from the vehicle harness. . The audio amplifier is a participant on the MOST network. The audio amplifier receives audio signals and control information from the MOST bus.

Amplifier Operation

The purpose of the amplifier is to increase the power of a voltage or current signal. The output signal of an amplifier may consist of the same frequencies as the input signal or it may consist of only a portion of the frequencies as in the case of a subwoofer or midrange speaker. The audio amplifier amplifies the signal and sends it to the appropriate speakers.

Each of the audio output channel circuits (+) and (−), at the audio amplifier have a DC bias voltage that is approximately one half of the battery voltage. When using a DMM, each of the audio output channel circuits will measure approximately 6.5V DC. The audio being played on the system is produced by a varying AC voltage that is centered around the DC bias voltage on the same circuit. The AC voltage is what causes the speaker cone to move and produce sound. Both the DC bias voltage and the AC voltage signals are needed for the audio system to properly produce sound.

Speaker Operation

Speakers turn electrical energy into mechanical energy to move air, using a permanent magnet and an electromagnet. The electromagnet is energized when the radio or amplifier (if equipped) delivers current to the voice coil on the speaker. The voice coil will form a north and south pole that will cause the voice coil and the speaker cone to move in relation to the permanent magnet. The current delivered to the speaker is rapidly changing alternating current (A/C). This causes the speaker cone to move in two directions producing sound.

Infotainment Controls and Display

The infotainment display and controls are a separate component from the radio, combined into an assembly. The assembly contains the control knobs and buttons for all audio and HVAC functions and the information display. The assembly is supplied battery voltage and ground from the vehicle harness.

Control information, touch communications and dimming level for the display are communicated via a LIN serial data circuit to the human machine interface module.

The human machine interface module sends the display digital video data for on-screen display through a dedicated video cable.

The information display provides a feedback on the touch screen and certain controls. Buttons pulse when pressed to affirm that the command is being carried out,

When not actively in use, the screen reverts to minimal images. Proximity Sensing awakens the LCD screen when a hand approaches it.

The controls communicate via a LIN serial data circuit with the remote radio receiver . Messages communicated include the following:

- Wake-up/power state messages
- Diagnostic information
- Button presses/knob rotations
- Commands for the state of indicators
- Back-lighting dimming level

HVAC data for controls and status indicators is communicated between the HVAC controls and the HVAC control module with a separate LIN serial data circuit. HVAC status screen information from the HVAC control module is transmitted to the radio on the GMLAN serial data circuit. The radio communicates the desired screen information to the human machine interface module to be sent to the information display using the video data circuits.

Antenna System

Multi-Band Antenna

The multi-band antenna is located on the roof of the vehicle. This antenna is used with the AM/FM radio, as well as GPS and XM signals, if the vehicle has these features. Keep this antenna clear of snow and ice build up for clear reception. If the vehicle has a sunroof, the performance of the system may be affected if the sunroof is open. Loading items onto the roof of the vehicle can interfere with the performance of the system, ensure the multi-band antenna is not obstructed.

The radio antenna is enabled when the radio is turned on. The radio provides battery voltage to the antenna using the center conductor of the antenna coaxial cable. This DC voltage does not affect the incoming radio signal. When a 12 V signal is seen by the antenna on the center conductor of the antenna coax, both AM and FM signals are amplified.

Radio Reception

AM/FM Radio Signal

The radio signal is sent from a broadcast station and is then received by an antenna. The strength of the signal received depends on the following:

- The power output (wattage) of the broadcasting station
- The location of the vehicle (or receiver) relative to the broadcast tower.
- Height of the broadcast antenna
- Height of the receiving antenna

- Obstacles between the tower and the receiver
- Atmospheric conditions
- What band (AM or FM) the station is broadcasting
- Type of antenna and the ground plane

Digital Radio Receiver (If equipped)

The XM satellite receiver is integrated into the radio. XM satellite radio provides digital radio reception. The XM signal is broadcast from two satellites and, where necessary, terrestrial repeaters. The high power satellites allow the antenna to receive the XM signal even when foliage and other partial obstructions block the antennas view of the satellite. Terrestrial repeaters are used in dense urban areas. These repeaters will receive the satellite signal and re-broadcast them at much higher power levels in order to ensure reception in areas with densely packed tall buildings. A service fee is required in order to receive the XM service.

Radio Data System (RDS)

The RDS feature is available only on FM stations that broadcast RDS information. This system relies upon receiving specific information from these stations and only works when the information is available. While the radio is tuned to an FM-RDS station, the station name or call letters display. RDS data is carried in what is known as a "subcarrier". A subcarrier is a frequency that the FM broadcaster is authorized to use to send data that is not audible in the main audio program.

RDS functions will only work with FM broadcast stations that are broadcasting RDS data. Not all FM Broadcast stations broadcast RDS data or offer all of the RDS services.

The information displayed is dependent upon the information broadcast by the particular station. The information may vary greatly between stations. RDS functions may not work properly when reception is weak, reception is of poor quality, or RDS is not implemented properly by the FM Broadcaster. In some cases, a radio station broadcasting incorrect information may cause the RDS features of the radio to appear to work improperly.

With RDS, the radio can do the following:

- Display text information such as: station identification, type of programming, and general information (artist and song title, station messages, call in phone numbers, etc.).
- Seek to stations broadcasting the selected type of programming
- Receive announcements concerning local and national emergencies
- Receive alert warnings of local or national emergencies. When an alert announcement comes on the current radio station, ALERT! displays. You will hear the announcement, even if the volume is low or a CD is playing. If a CD is playing, play stops during the announcement. Alert announcements cannot be turned off. ALERT! is not affected by tests of the emergency broadcast system. This feature is not supported by all RDS stations.

Theft Deterrent

The radio theft deterrent system is intended to disable or limit radio functionality if incorrect vehicle information is received by the radio. The radio disables functionality if the VIN information received by the radio does not match the VIN information that has been learned by the radio. The radio receives this information via serial data. A possible cause of incorrect VIN info could be the radio was originally installed in another vehicle.

The radio has the following theft operating modes as part of the theft deterrent system:

- Normal Mode: The radio has learned a correct VIN sequence and the VIN information received via serial data matches the learned VIN sequence. In this mode the radio has full functionality.
- No VIN Mode: The radio has not received or learned a correct VIN sequence. In this mode the radio has limited functionality.
- Theft Detected Mode: The radio has learned a correct VIN sequence and the VIN information received via serial data does NOT match the learned VIN sequence. In this mode the radio may be disabled or have limited functionality. The radio display will indicate that theft protection is active.

Bluetooth ® (If equipped)

Bluetooth ® wireless technology is a short-range communications technology intended to replace the cables connecting portable and/or fixed devices while maintaining high levels of security. The operating range of the signal is approximately 30 feet.

The available features and functions are determined by the type of device and the software within the devices being used. For a feature or function to operate, it must be supported in both devices.

The first connection between devices is established through a process called pairing. In order to pair two devices, a password (passkey) has to be exchanged between the two devices. One device will generate the password, the other device accepts the password to complete the process. Once the devices are paired, future connections between the devices will occur automatically when the devices are on and within range of each other.

The Bluetooth ® hardware is internal to the human machine interface module. The human machine interface module supports streaming of data (music, voice, information) from cellular phones and other mobile devices that support those features. The human machine interface module is also capable of interfacing with cellular phones for hands-free features.

- The device must be paired to the system to use the available Bluetooth ® feature(s). The pairing process must only be performed once for each device, unless that device’s information is deleted.
- Up to five devices can be paired, but only one can be connected at any given time.
- Streaming Audio allows playing music from the mobile device wirelessly. Music stored on the mobile device can be viewed and controlled from the display.
- To stream audio from a mobile device, the device must be unlocked, and any additional applications should be closed.

Refer to the vehicle owners manual, supplements, and the device manufacturers information for pairing instructions.

Applications (If equipped)

When the system is equipped with Bluetooth ®, the system is capable of using applications, commonly referred to as apps.

The term application refers to any piece of software that works on a system (hardware) that is being operated by it’s own software. Applications are typically small software programs which uses the hardware to perform a specific task, as opposed to operating the entire system.

- For an application to be used, it must be installed on both the vehicle infotainment system and a compatible mobile device.
- The device must be connected to the system. this may be done wirelessly via Bluetooth ®, or via the vehicle USB port. Refer to the device manufacturers information for the proper connection method.
- When the device is connected, the vehicle infotainment system is used to remotely access and control the application on the mobile device.

- The application must work correctly on the device to work with the vehicle infotainment system.
- The user may be required to log-in to the application on the mobile device before using the application from the vehicle controls.
- Using applications will use the device's data plan.
- The device must be unlocked, and any additional applications should be closed.

Refer to the owner's manual and supplements for information on mobile devices, control, and operation.

Auxiliary Inputs

Front Auxiliary Audio Input

The infotainment system has a auxiliary jack, USB, and memory card receptacle assembly located in the console. The two USB ports and the card reader slot interface with a hub device, internal to the assembly. The assembly receives fused battery voltage and ground from the harness to power the internal hub device as well as providing additional amperage to power USB devices.

The internal hub device interfaces directly with the human machine interface control module via a standard USB cable. A Mini type USB connector is used to connect the cable at the USB port and at the human machine interface control module and at the auxiliary jack, USB, and memory card receptacle. Standard USB male to female connections are typically used for connecting USB cables together where an in-line connection is required. An in-line cable connection is typically found between the console and I/P harness.

The auxiliary audio input jack interfaces directly with the radio. When a portable audio playback device is connected to the auxiliary jack, an internal switch detects the connection and the radio will switch to AUX as the audio source. Audio signals from the device are sent to the radio from the auxiliary jack via the left, right, and common audio signal circuits.

- Playback of an audio device that is connected to the 3.5mm jack can only be controlled using the controls on the device.
- The volume control on the device may need to be adjusted to ensure sufficient playback volume through the infotainment system.

USB ports allow connectivity to the infotainment system from portable media players or a USB storage device (memory stick/ flash drive). When a device is connected to the USB port, the system detects the device and USB becomes available as an audio source. Once connected, the device can be controlled from the radio controls.

- Not all portable media player devices or file types are compatible. Connection to USB HUB devices is not supported.
- Refer to the owner's manual for information on USB devices, control, and operation.

The infotainment system uses the SD card reader as a mass storage device, similar to a USB storage device. Refer to the owners manual for information on media types supported via the SD card reader.

Rear USB Ports

The infotainment system has a USB receptacle assembly located in the rear of the console. The two USB ports interface with a hub device, internal to the assembly. The assembly receives fused battery voltage and ground from the harness to power the internal hub device as well as providing additional amperage to power USB devices.

The internal hub device interfaces directly with the human machine interface control module via a standard USB cable. A Mini type USB connector is used to connect the cable at the USB port and at the human machine interface control module and at the auxiliary jack, USB, and memory card receptacle. Standard USB male to female connections are typically used for connecting USB cables together where an in-line connection is required. An in-line cable connection is typically found between the console and I/P harness.

An additional USB port is located in the console storage compartment. This USB port is connected to the rear receptacle assembly via a USB cable, and interfaces through the rear receptacle internal hub to connect to the system.

Navigation System Components and Features (if equipped)

The human machine interface module provides navigation functionality, if equipped. The human machine interface module provides the following:

- Connection to the global positioning system (GPS) antenna, which provides the vehicle position information.
- Map data for navigation and map route guidance, stored in the human machine interface modules internal memory.
- Route guidance with verbal prompts to the operator.
- Traffic and weather information for display on the navigation system map (with active subscription, where available).

Global Positioning System (GPS) Antenna

The global positioning system (GPS) antenna is part of the multi-band antenna located on the roof of the vehicle. The GPS antenna is used to collect the signals of the orbiting GPS satellites. Within the antenna is housed a low noise amplifier that allows for a more broad and precise reception of this data. The GPS antenna amplifier is powered through the coaxial cable.

The antenna is connected to the human machine interface module directly, or through a signal splitter. The signal splitter is a component for dividing the navigation signal into two paths without any transmission loss. This allows the use of a single GPS antenna to provide a signal to both the human machine interface module and the telematics communication interface module.

Route Guidance

The map will display the route to the selected destination. Voice prompts alert the operator of upcoming events (turns) and arrivals at the destination. The navigation system will automatically recalculate if the route is not followed. The human machine interface module uses data received from the global positioning system (GPS) satellites, the vehicle speed signal. and serial data information to accurately display the current position of the vehicle.

Points of Interest

The map database provides point of interest information. Points of interests are locations that are frequently visited. Points of interest can be can be displayed on the map or set as a destination. The following are some of the available Points of interests:

- Gas Station
- Restaurant
- College
- Police Station

Valet Mode

Valet Mode is a customer enabled feature of the infotainment system, found in the settings menu, if equipped. The customer creates and inputs a four digit code using the infotainment controls. Confirming the code and selecting LOCK will lock the infotainment system, steering wheel controls and other vehicle features, dependant on vehicle equipment. The vehicle will remain in valet mode until the same four digit code is reentered.

In the event that the four digit code is forgotten, the scan tool can be used to clear the Valet Mode Code.

OnStar ® (If equipped)

When OnStar is activated, a serial data message is sent to the radio that activates a software program. When the software begins its process, the fade goes to the front, Bass and Treble are set to the mid range, the outputs are mono, and the audio source is OnStar. OnStar takes priority over any other audio source. All of these actions are preset values stored in the radio.

For additional OnStar information, refer to CELL Link Error - Link target cell (cell ID 149754) is invalid for this publication..

Steering Wheel Controls

Some audio functions are available using the steering wheel controls. The steering wheel controls duplicate the function of the primary controls available on the radio.

For additional information on steering wheel controls, refer to Steering Wheel Controls Description and Operation (with W1Y)Steering Wheel Controls Description and Operation (without W1Y).

Auto Volume Control

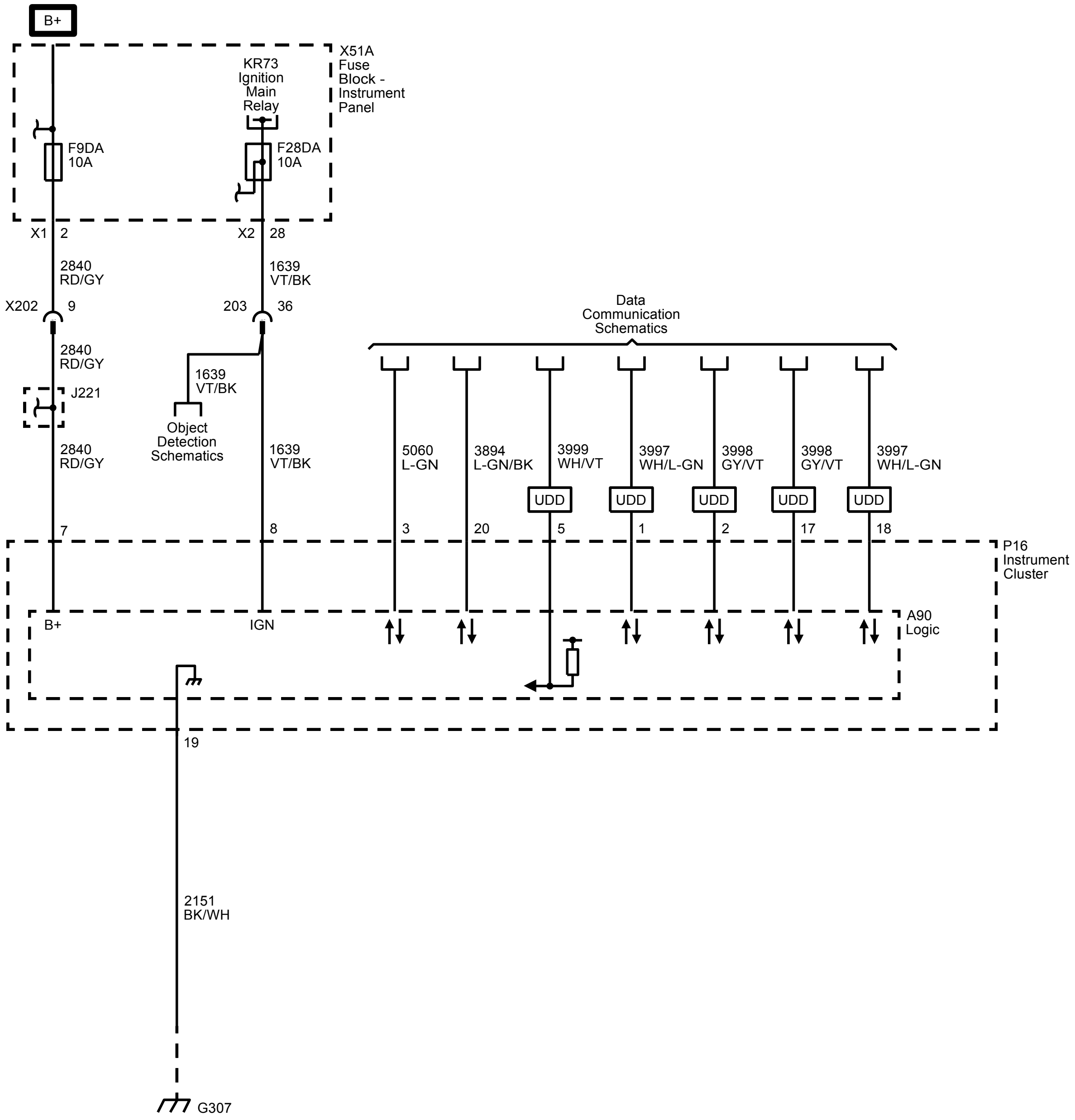
With auto volume control, the audio system will adjust automatically to make up for road and wind noise as you drive, by increasing the volume as vehicle speed increases. To use auto volume control, set the volume at the desired level, and then select either Low, Medium, or High. To turn auto volume control off, select the Off screen button.

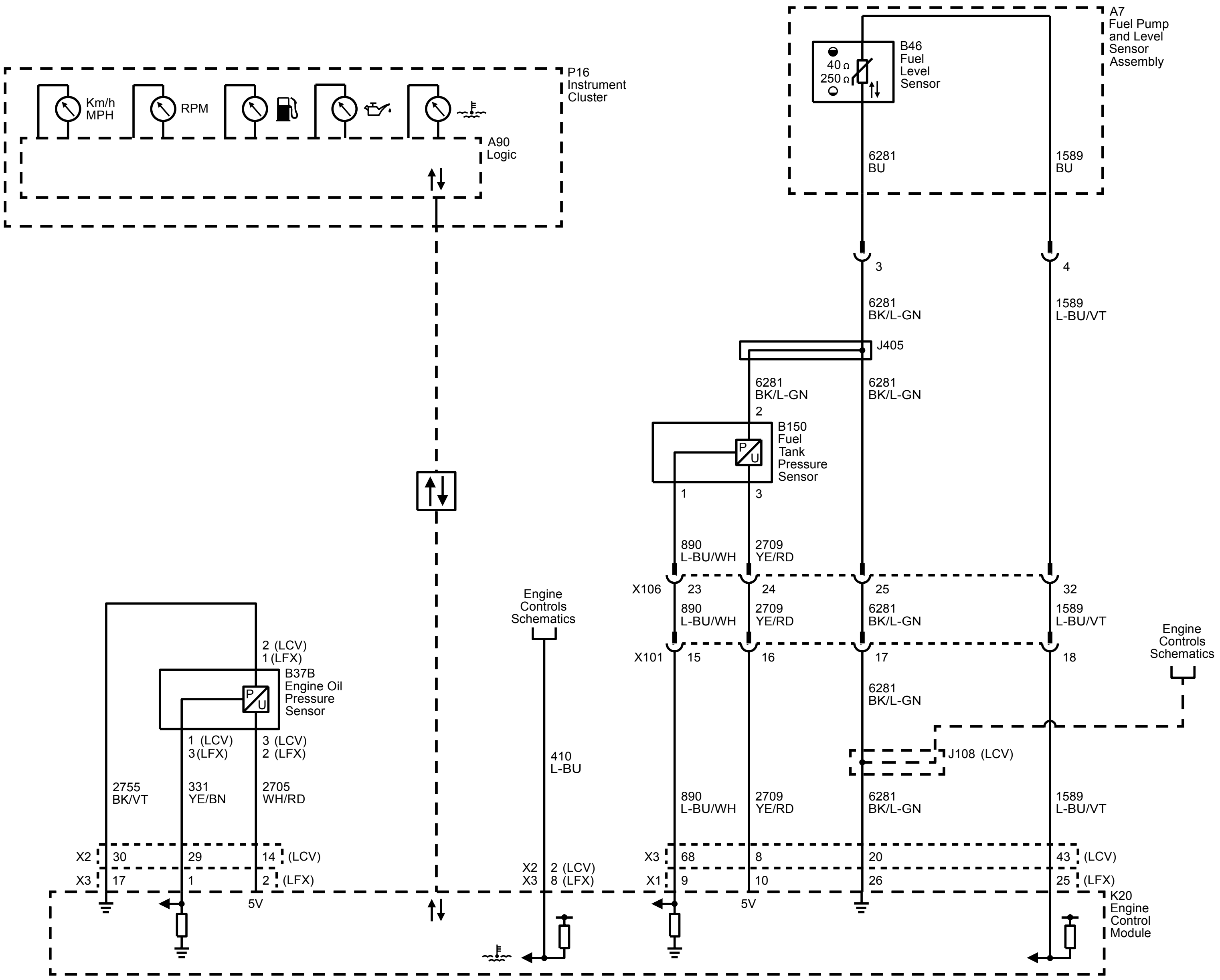
Displays and Gauges

Schematic and Routing Diagrams

Instrument Cluster Schematics

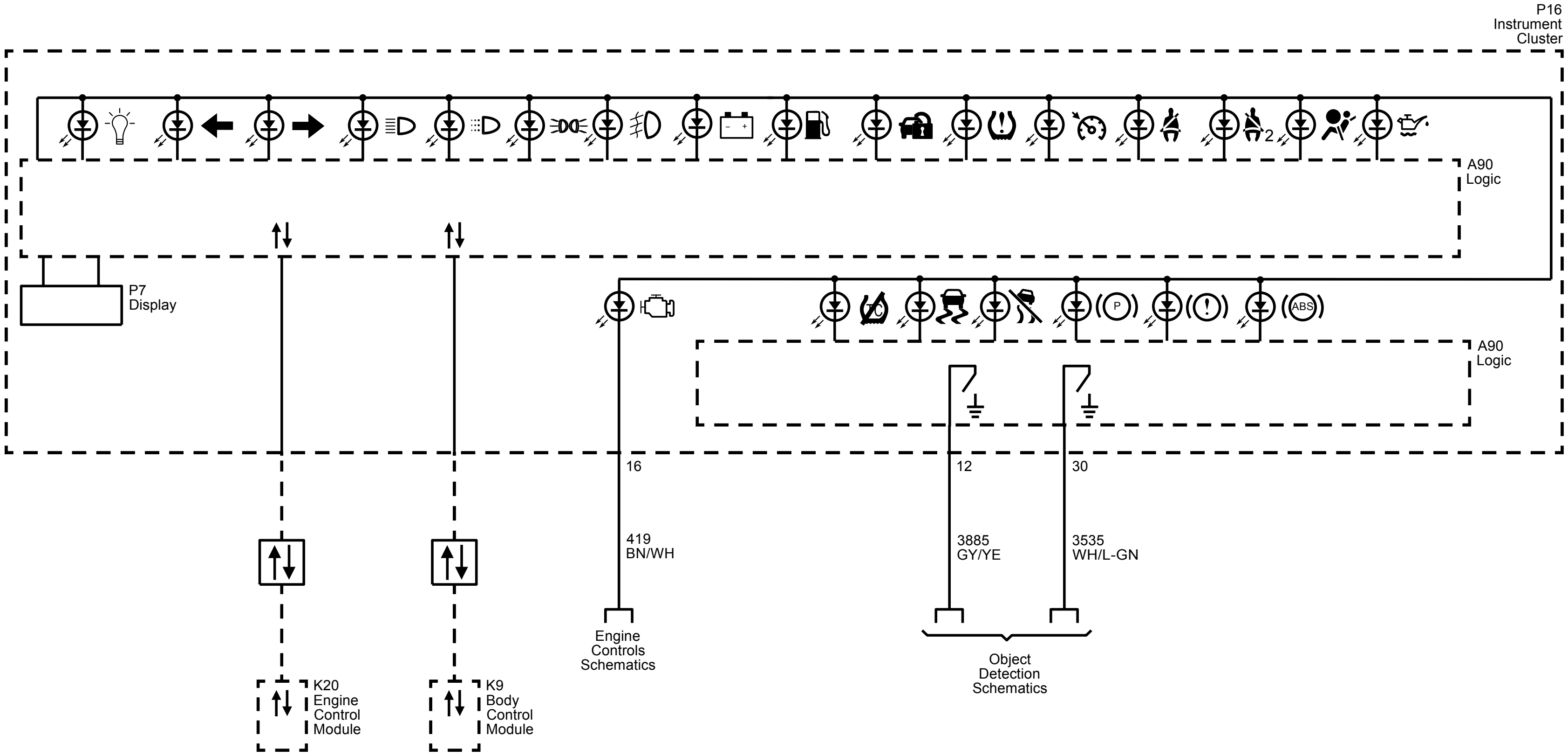
Power, Ground and Serial Data

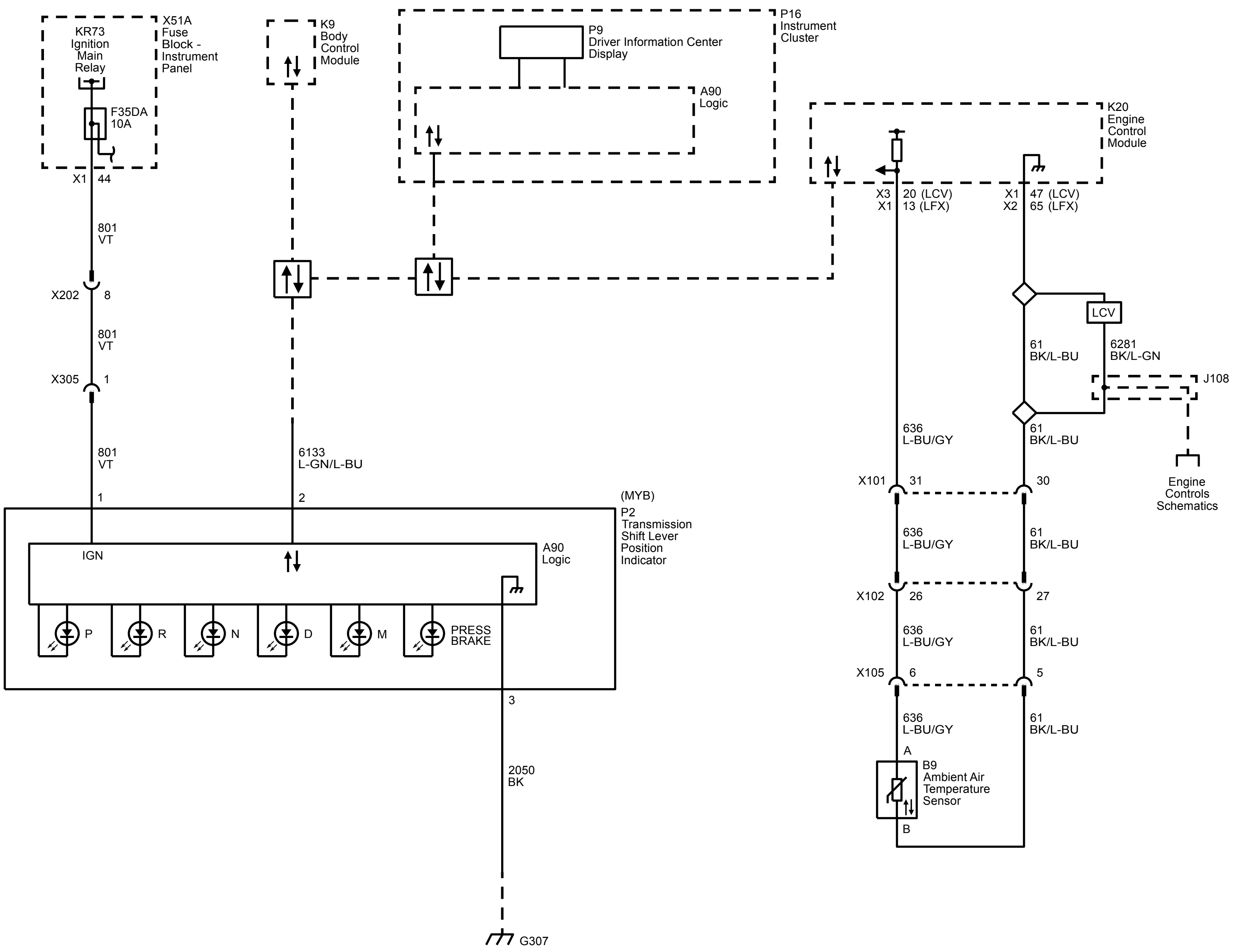

B+
X51A Fuse Block - Instrument Panel
KR73 Ignition Main Relay
F9DA 10A
F28DA 10A
X1 2
X2 28
2840 RD/GY
1639 VT/BK
X202 9
203 36
2840 RD/GY
J221
1639 VT/BK
Object Detection Schematics
2840 RD/GY
1639 VT/BK
Data Communication Schematics
5060 L-GN
3894 L-GN/BK
3999 WH/VT
3997 WH/L-GN
3998 GY/VT
3998 GY/VT
3997 WH/L-GN
UDD
UDD
UDD
UDD
UDD
7
8
3
20
5
1
2
17
18
P16 Instrument Cluster
B+
IGN
A90 Logic
19
2151 BK/WH
G307


P16 Instrument Cluster
Km/h MPH
RPM
A90 Logic
A7 Fuel Pump and Level Sensor Assembly
B46 Fuel Level Sensor
40 Ω
250 Ω
6281 BU
1589 BU
3
4
6281 BK/L-GN
1589 L-BU/VT
J405
6281 BK/L-GN
2
B150 Fuel Tank Pressure Sensor
1
3
890 L-BU/WH
2709 YE/RD
X106
23
24
25
32
890 L-BU/WH
2709 YE/RD
6281 BK/L-GN
1589 L-BU/VT
X101
15
16
17
18
6281 BK/L-GN
J108 (LCV)
Engine Controls Schematics
Engine Controls Schematics
890 L-BU/WH
2709 YE/RD
6281 BK/L-GN
1589 L-BU/VT
2 (LCV)
1 (LFX)
B37B Engine Oil Pressure Sensor
1 (LCV)
3 (LFX)
3 (LCV)
2 (LFX)
2755 BK/VT
331 YE/BN
2705 WH/RD
410 L-BU
X2
30
29
14
(LCV)
X3
17
1
2
(LFX)
5V
X2
X3
2 (LCV)
8 (LFX)
X3
68
8
20
43
(LCV)
X1
9
10
26
25
(LFX)
5V
K20 Engine Control Module

Body Control Indicators

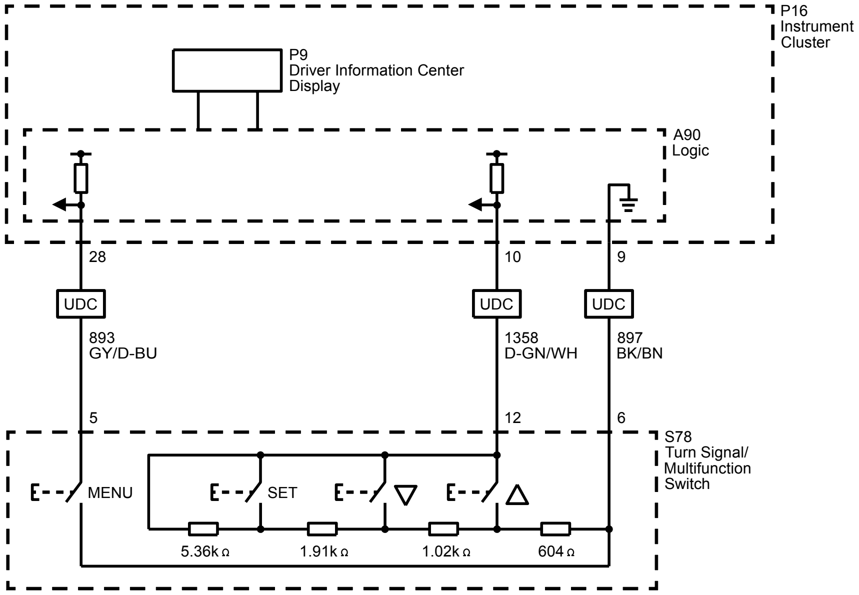
LOC
DESC


P16
Instrument
Cluster
A90
Logic
P7
Display
A90
Logic
2
P
ABS
16
12
30
419
BN/WH
3885
GY/YE
3535
WH/L-GN
Engine
Controls
Schematics
Object
Detection
Schematics
K20
Engine
Control
Module
K9
Body
Control
Module

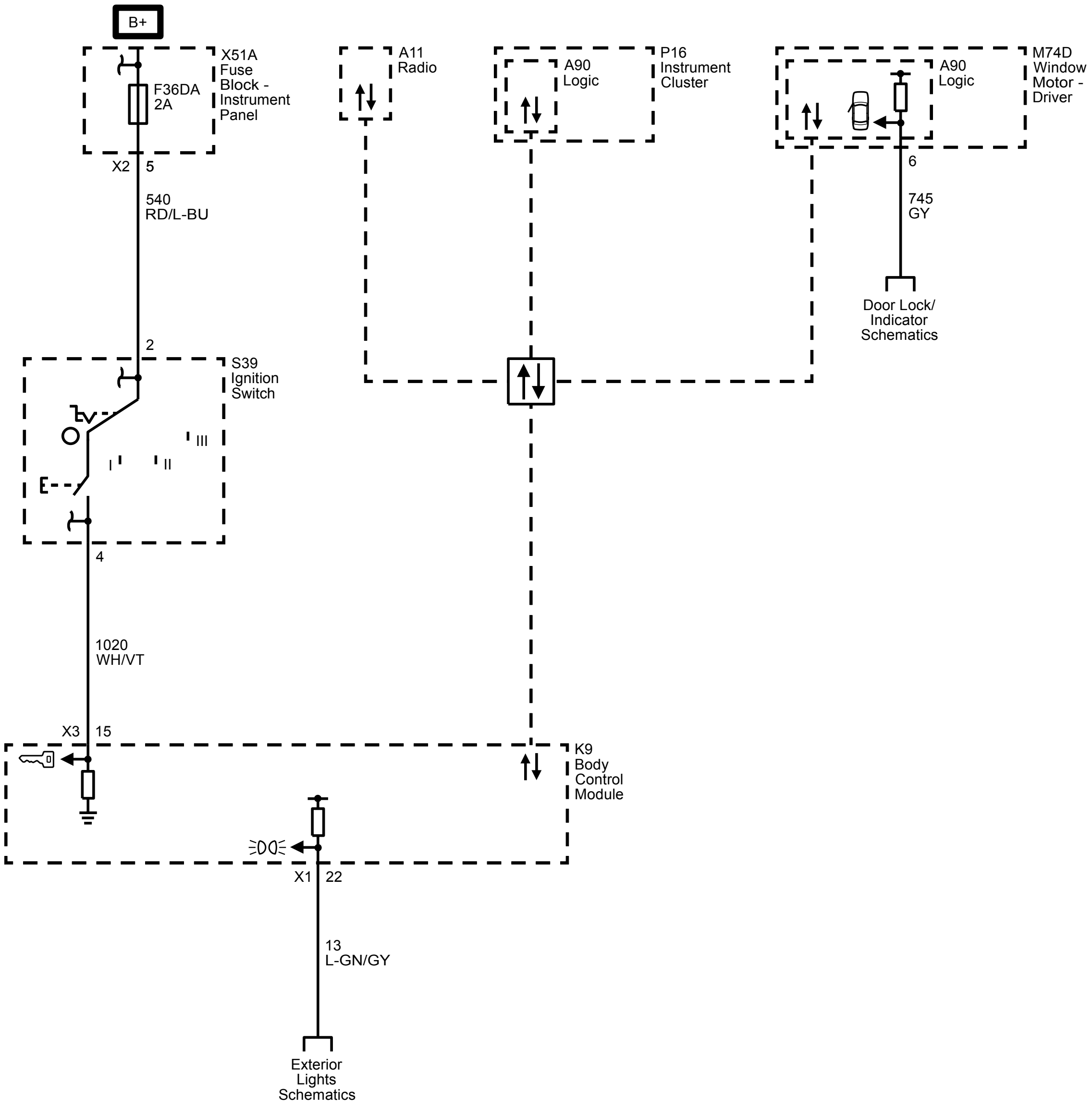

KR73
Ignition
Main
Relay
X51A
Fuse
Block -
Instrument
Panel
F35DA
10A
X1
44
801
VT
X202
8
801
VT
X305
1
801
VT
1
K9
Body
Control
Module
6133
L-GN/L-BU
2
P9
Driver Information Center
Display
P16
Instrument
Cluster
A90
Logic
K20
Engine
Control
Module
X3
X1
20 (LCV)
13 (LFX)
X1
X2
47 (LCV)
65 (LFX)
LCV
61
BK/L-BU
6281
BK/L-GN
J108
61
BK/L-BU
Engine
Controls
Schematics
636
L-BU/GY
X101
31
30
636
L-BU/GY
61
BK/L-BU
X102
26
27
636
L-BU/GY
61
BK/L-BU
X105
6
5
636
L-BU/GY
61
BK/L-BU
A
B9
Ambient Air
Temperature
Sensor
B
(MYB)
P2
Transmission
Shift Lever
Position
Indicator
A90
Logic
IGN
P
R
N
D
M
PRESS
BRAKE
3
2050
BK
G307

Driver Information Center Controls (UDC)

LOC
DESC


P16
Instrument
Cluster
P9
Driver Information Center
Display
A90
Logic
28
10
9
UDC
UDC
UDC
893
GY/D-BU
1358
D-GN/WH
897
BK/BN
5
12
6
S78
Turn Signal/
Multifunction
Switch
MENU
SET
▽
△
5.36k Ω
1.91k Ω
1.02k Ω
604 Ω

Audible Warning


B+
X51A
Fuse
Block -
Instrument
Panel
F36DA
2A
X2
5
540
RD/L-BU
A11
Radio
A90
Logic
P16
Instrument
Cluster
A90
Logic
M74D
Window
Motor -
Driver
6
745
GY
Door Lock/
Indicator
Schematics
2
S39
Ignition
Switch
III
I
II
4
1020
WH/VT
X3
15
K9
Body
Control
Module
X1
22
13
L-GN/GY
Exterior
Lights
Schematics

Description and Operation

Audible Warnings Description and Operation

The audible warnings alert the driver of a system concern or a critical vehicle condition. The radio generates the audible warnings through the speakers. The radio receives audible warning requests via serial data. If the radio receives multiple audible warning requests, the warning with the highest priority sounds first. Different audible warnings may sound with a different frequency or a different chime pattern, depending on the system or module making the request. The chime volume may be selectable through vehicle personalization.

Audible Warnings or Chimes

The following is a list of common audible warnings or chimes. For additional chimes or complete system description, refer to the appropriate system's Description and Operation or the vehicle owner's manual.

- Driver Seat Belt Reminder – If the vehicle is started and the seat belt is unbuckled, the BCM requests the radio sound a chime to indicated that the belt is unbuckled. This is accompanied by a flashing driver seat belt indicator on the instrument cluster. If the belt remains unbuckled, the chime cycle may continue multiple times if the vehicle is driven and the indicator will remain on solid.
- Passenger Seat Belt Reminder – If the passenger presence system determines that their is an occupant in the passenger seat and the vehicle is started with the passenger seat belt unbuckled, the BCM requests the radio sound a chime to indicated that the belt is unbuckled. This is accompanied by a flashing passenger seat belt indicator. If the belt remains unbuckled, the chime cycle may continue multiple times if the vehicle is driven and the indicator will remain on solid. If an object is placed on the passenger seat, the passenger presence system may interpret this as a passenger occupying the seat. Because the passenger seat belt is unbuckled, the passenger seat belt reminder chime will sound. To correct this, remove the object from the passenger seat.
- Exterior Lamps On Warning – If the exterior lamps are left on after the ignition is turned off and the driver door is opened, the BCM will request the radio sound a chime as an indicator that the exterior lamps are on.
- Electric Parking Brake – If the electric parking brake switch is pressed while the vehicle is in motion, the parking brake control module will request the radio sound a chime. To release the parking brake, the brake pedal must be pressed when the electric parking brake switch is pressed. If the brake pedal is not pressed, the parking brake control module will request the radio sound a chime. A message will also appear on the driver information center.
- Delayed Locking – If the keyless entry transmitter is not in the vehicle and the door lock switch is pressed with the driver door open, the BCM will request the radio sound a chime three times to indicate that the vehicle has entered a delayed locking state. The doors will automatically lock five seconds after the last door is closed.
- Object Detection – The object detection system sends various chime requests to the radio during normal operation.

Additional Warnings

The following warnings have an associated instrument cluster indicator or driver information center message:

- Turn Signal Indicators – The radio activates the audible warning as requested by the BCM.
- Vehicle Overspeed Message – The radio activates the audible warning as requested by the BCM.
- Fuel Level Low Message – The radio activates the audible warning as requested by the BCM.
- Oil Pressure Indicator – The radio activates the audible warning as requested by the BCM.
- Tire Pressure Low Indicator – The radio activates the audible warning as requested by the BCM.
- Antilock Brake Indicator – The radio activates the audible warning as requested by the electronic brake control module.
- Engine Cooling System Messages – The radio activates the audible warning as requested by the engine control module.
- Transmission Messages – The radio activates the audible warning as requested by the transmission control module.

Driver Information Center (DIC) Description and Operation (Uplevel)

The driver information center is located in the lower middle portion of the instrument cluster, between the speedometer and the tachometer. The driver information center displays information about the vehicle and allows the operator to access applications. It also displays warning messages if a system problem is detected.

The driver information center is made up of three zones. The left zone is a list of the applications that can be displayed. The right zone contains choices to customize what information is displayed for the respective application chosen. In the middle is the interactive application display zone. The application display zone allows access to the navigation application, audio application, phone application, or settings applications. The information display zone contains multiple pages that display vehicle information. The compass and PRNDL are displayed at all times in the lower portion of the display zone.

The driver information center can also be configured with several different themes. Changing the theme is accomplished using the infotainment system faceplate settings page. The chosen theme is used for both the faceplate and the driver information center displays.

Driver Information Center (DIC) Description and Operation (Base)

In the lower middle of the instrument cluster, an additional display is installed. Its task is to give additional information, such as an odometer, select gear or error codes/warning messages. Refer to Indicator/Warning Message Description and Operation.

There are 4 switch functions for the driver information center:

- Menu
- Set/CLR
- Up
- Down

Menu

The Menu switch is used to navigate between the Vehicle Information Menu and the Trip/Fuel Information Menu. Cycle through the following vehicle parameters by successive pressing of the Menu switch.

Up and Down

The Up and the Down switches are used to navigate within the menus. Cycle through the following menu parameters by successive pressing of the Down switch.

Vehicle Information Menu

- Battery Voltage
- Hour meter
- Remaining Oil Life (only for V6 engines)
- Speed Warning
- Transmission Fluid Temperature (only for AT vehicles)
- Units Menu

Trip/Fuel Information Menu

- Average Fuel Economy
- Average Vehicle Speed
- Digital Speed Page
- Fuel Range
- Fuel Used
- Outside Air Temperature
- Timer
- Trip 1
- Trip 2

Trip 1/2

The trip odometer 1 or 2 can be accessed through the driver information center switch Up/Down function.

Trip Display

Driver Information Center Trip Display	Range		
	Europe-SI	USA	GB
TRIP 1	####.#km	####.#miles	####.#miles
TRIP 2	####.#km	####.#miles	####.#miles

Average Fuel Economy

Average fuel economy is calculated using the equation: Average Fuel Economy = Distance/Fuel.

- Distance = The accumulated distance travelled since the last reset of this value
- Fuel = The accumulated fuel consumption since the last reset of this value

The ECM sends the average fuel economy GMLAN message to the instrument cluster. The value of this mode is retained during ignition OFF and can be changed between English units and metric units by selecting from the driver information center options menu.

Fuel Range

This message indicates the estimated distance that the vehicle can travel under the current fuel economy and fuel level conditions since the last battery connection to the instrument cluster. Fuel Range is calculated using the equation: Fuel Range = Range Distance/Range Fuel Used.

- Range Distance = The accumulated distance travelled since the last reset of this value
- Fuel Used = The accumulated fuel delivered since the last reset of this value

The engine control module (ECM) sends the fuel range value to the instrument cluster. The instrument cluster receives a GMLAN message with fuel information. The fuel range value is retained during ignition OFF and can be changed between Europe-SI, USA and GB units by accessing the driver information center Units menu. The Fuel Range display cannot be reset. LOW is displayed when fuel range is below a predetermined value.

Average Vehicle Speed

Average speed is calculated using the equation: Average Speed = Average Speed Distance/Average Speed Time.

- Distance = The accumulated distance travelled since the last reset of this value
- Ignition ON = The accumulated ignition on time since the last reset of this value

Outside Air Temperature

The outside air temperature can be accessed through the driver information center Trip/Fuel switch function. The driver information center shows the outside air temperature as a damped value. The time and rate of the temperature update is based on an algorithm in the instrument cluster. Factors such as last temperature reading, current temperature reading, length of time the vehicle was off, current vehicle speed, and the distance driven effect when the displayed temperature is updated. To get the vehicle to display the most accurate temperature faster, drive the vehicle. Constant moving traffic will update the display to the correct temperature more quickly than stop and go traffic.

Timer

The timer records elapsed time starting from activation. When the driver information center displays the timer, pressing the Set/Reset switch for longer than 1 s the driver information center resets the timer. Pressing the Set/Reset button on the driver information center switch for approximately 1 s starts and stops the timer. The driver information center displays the timer in one of the following formats:

The driver information center displays the timer in the following format: XX: XX:XX:

The first XX represents hours elapsed, the second XX represents minutes elapsed, and the third XX represents seconds elapsed. The maximum range of the timer is 99 h, 59 min, and 59 s. After the maximum range is reached, the timer displays zeros in all positions. (00:00:00).

Oil Life Remaining

The ECM sends the oil life remaining percentage to the instrument cluster via a GMLAN message. The instrument panel cluster receives a GMLAN message indicating the engine oil life remaining. The driver information center displays the current percentage of the GM Oil Life System as determined by the ECM. When the oil life remaining percentage drops below 5%, the driver information center displays CHANGE ENGINE OIL SOON. When the engine oil is changed, reset the GM Oil Life System. Refer to the owners manual for instructions on resetting the oil life monitor.

Units Menu

The unit mode is used to toggle between Europe-SI, USA and GB units and can be accessed through the driver information center Menu switch and the driver information center Set/Reset switch.

Tire Pressure Monitor

The instrument cluster receives a GMLAN message from the tire pressure monitoring system for front and rear tire pressure data. The driver information center will display the pressure for each of the front and rear tires. When a tire with low air pressure is present, the driver information center displays a warning, CHECK XX TIRE PRESSURE.

Compass

The vehicle may have a compass display on the Driver Information Center (DIC). On most vehicles, the compass receives its heading and other information from the Global Positioning System (GPS) antenna, StabiliTrak, and vehicle speed information. On vehicles without a telematics communication interface control module, a dedicated compass module is used to perform the same function as the telematics communication interface module.

Avoid covering the GPS antenna for long periods of time with objects that may interfere with the antenna's ability to receive a satellite signal.

Battery Voltage

The battery voltage can be accessed through the driver information center Trip/Fuel switch function. The driver information center shows the battery voltage measured at the B+ input circuit.

Odometer

The instrument cluster displays the vehicle odometer in the driver information center. The ECM send a distance rolling count message on GMLAN to the body control module (BCM). The BCM uses this information to calculate the vehicle odometer. This odometer value is then sent to the instrument cluster on GMLAN. The instrument cluster does not calculate the odometer. The odometer displays miles or kilometers as selected in the Units menu.

The odometer value is stored in multiple modules. The instrument cluster is a secondary storage module for the odometer, while the BCM is the primary storage and accumulator.

In addition to storing the odometer value for the vehicle, the instrument cluster and the BCM store the VIN. Software checks are performed to ensure these modules, and their stored odometer information, can not be move or transferred between different vehicles.

If the VINs do not match, the instrument cluster will go into an error mode and display “----” (dashes). If the VIN mismatch exists over a calibrated distance, the instrument cluster will “lock” the odometer display and only show dashes, even if the VIN mismatch is subsequently correct. The only way to clear or “unlock” the instrument cluster is to perform a BCM programming event using SPS.

Gear Indication

If the vehicle is equipped with an automatic transmission the driver information center displays the actual gear . The instrument cluster receives a GMLAN message with actual gear information from the automatic transmission module.

Park Assist Menu

If the parallel parking assistant is activate, the parallel parking assist menu is displayed in the driver information center. The driver information center displays the current state of the parallel parking assist until the instrument cluster receives a message indicating otherwise.

Language

The driver information center is capable of displaying in different languages, corresponding to the radio language settings. The instrument cluster receives a GMLAN message with language information from the radio. This message is only sent one time, after a new language is selected. To set the language, see the owners manual.

Indicator/Warning Message Description and Operation

INDICATOR LIGHT ON

Refer to the OWNER’S MANUAL for the descriptions and explanations of all indicator lights.

For diagnosis and repair information related to an indicator light refer to the System Diagnosis and the Description of Operation that the message relates to.

MESSAGE DISPLAYED

Refer to the OWNER’S MANUAL for descriptions and explanations of all messages displayed.

For diagnosis and repair information related to a displayed message refer to the System Diagnosis and the Description of Operation that the message relates to.

CHANGE TIMING BELT MESSAGE

The Instrument Cluster monitors the odometer mileage to determine when timing belt (if equipped) replacement may be necessary. After the vehicle has accumulated approximately 100,000 miles (160,000 kilometers), the Instrument Cluster may display the CHANGE TIMING BELT message. After the engine timing belt has been replaced, reset the CHANGE TIMING BELT message by locating and removing the fuses that supply power to the Instrument Cluster for two minutes.

BRAKES OVERHEATED

The Electronic Brake Control Module monitors brake usage and compares it to an internal thermal model to determine if the brakes could become overheated. If the Electronic Brake Control Module determines the brakes pads have exceeded a desirable temperature based on the thermal model, it sends a serial data message to the Instrument Cluster to display the BRAKES OVERHEATED message. The message remains displayed until the estimated temperature returns to a desirable range.

Transmission Shift Lever Position Indicator

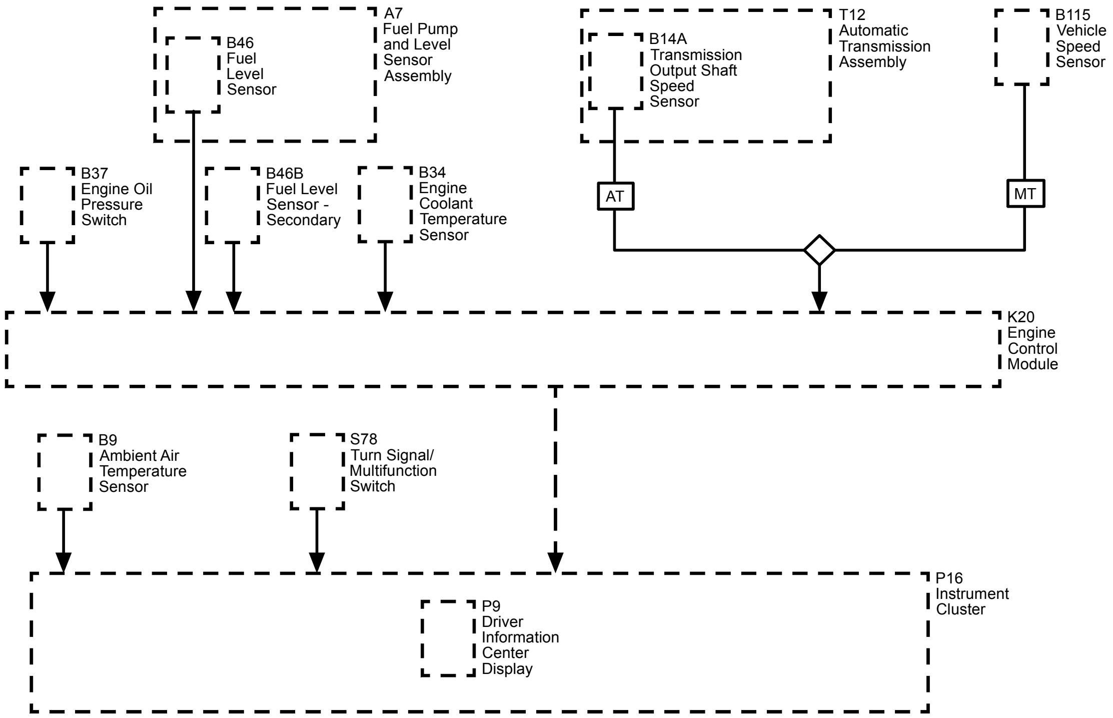
The Transmission Shift Lever Position Indicator (if equipped) is located on the center console and indicates the current transmission shift lever position. The Transmission Shift Lever Position Indicator receives power and ground and is controlled by the Body Control Module (BCM) via serial data. The Transmission Control Module determines transmission shift lever position based on signals from the Transmission Internal Mode Switch and sends the shift lever position information to the BCM via serial data.

Instrument Cluster Description and Operation (Uplevel)

Instrument Cluster

The instrument cluster is a multifunction module that provides the vehicle operator with information that is critical to vehicle operation, such as vehicle speed, engine RPM, and coolant temperature, using analog gauges. The instrument cluster also provides the operator with operational warnings and message through various indicators and the driver information center. The driver information center is a full color multifunction display that is located in the instrument cluster. The driver information center is also tightly integrated with the vehicle’s infotainment system and is highly reconfigurable.

Displays and Gauges Block Diagram


A7
Fuel Pump and Level Sensor Assembly
B46
Fuel Level Sensor
T12
Automatic Transmission Assembly
B14A
Transmission Output Shaft Speed Sensor
B115
Vehicle Speed Sensor
B37
Engine Oil Pressure Switch
B46B
Fuel Level Sensor - Secondary
B34
Engine Coolant Temperature Sensor
AT
MT
K20
Engine Control Module
B9
Ambient Air Temperature Sensor
S78
Turn Signal/ Multifunction Switch
P16
Instrument Cluster
P9
Driver Information Center Display

Indicators and Warning Messages

Refer to Indicator/Warning Message Description and Operation.

Engine Coolant Temperature Gauge

The instrument cluster displays the engine coolant temperature as determined by the engine control module (ECM). The ECM sends the engine coolant temperature information via serial data to the body control module (BCM). The BCM then sends the information via a serial data to the instrument cluster to display the engine coolant temperature.

Engine Oil Pressure Gauge (if equipped)

The IPC displays the engine oil pressure as determined by the ECM. The ECM monitors the engine oil pressure sensor. The IPC receives a serial data message from the ECM indicating the engine oil pressure. The engine oil pressure gauge defaults to 0 kPa (0 psi) or below if:

- The ECM detects a malfunction in the engine oil pressure sensor signal circuit.
- The IPC detects a loss of serial data communication with the ECM.

Fuel Level Gauge

The instrument cluster displays the fuel level based on the information from the ECM. The ECM converts the data from the fuel level sensors to a fuel level signal. The ECM sends the fuel level signal via serial data to the BCM. The BCM then sends the information via serial data to the instrument cluster to display the fuel level. If the fuel level falls under 11% the instrument cluster will illuminate the low fuel level indicator. The fuel gauge defaults to empty if:

- The ECM detects a malfunction in the fuel level sensor circuit.
- The BCM detects a loss of serial data communications with the ECM.
- The instrument cluster detects a loss of serial data communications with the BCM.

Speedometer

The instrument cluster displays the vehicle speed based on the information from the ECM. The ECM sends the vehicle speed information via serial data to the BCM. The BCM then sends the vehicle speed information via serial data to the instrument cluster to display the vehicle speed.

Odometer

The instrument cluster displays the vehicle odometer in the driver information center. The ECM send a distance rolling count message via serial data to the body control module (BCM). The BCM uses this information to calculate the vehicle odometer. This odometer value is then sent to the instrument cluster. The instrument cluster does not calculate the odometer.

The odometer value is stored in multiple modules. The instrument cluster is a secondary storage module for the odometer, while the BCM is the primary storage and accumulator.

In addition to storing the odometer value for the vehicle, the instrument cluster and the BCM store the VIN. Software checks are performed to ensure these modules, and their stored odometer information, can not be move or transferred between different vehicles.

Tachometer

The instrument cluster displays the engine speed based on the information from the ECM. The ECM converts the data from the crankshaft position sensor to an engine revolution signal. The ECM sends the engine speed information via serial data to the BCM. The BCM then sends the information via serial data to the instrument cluster to display the engine speed.

Compass

The vehicle compass information is gather through the compass module. The compass module determines vehicle direction and communicates this with the BCM through serial data. The BCM sends the compass information to the instrument cluster via serial data, where it is displayed.

Outside Air Temperature

The outside air temperature can be accessed through the driver information center Trip/Fuel switch function. The driver information center shows the outside air temperature as a damped value. The time and rate of the temperature update is based on an algorithm in the instrument cluster. Factors such as last temperature reading, current temperature reading, length of time the vehicle was off, current vehicle speed, and the distance driven effect when the displayed temperature is updated. To get the vehicle to display the most accurate temperature faster, drive the vehicle. Constant moving traffic will update the display to the correct temperature more quickly than stop and go traffic.

Driver Information Center Display

The driver information center is located In the lower middle of the instrument cluster. Its is a multifunction full-color LCD intended to display additional information, such as an odometer or messages. The driver information center is divided into three displays zones and is controlled using the steering wheel mounted driver information center select switch. For further information, refer to Driver Information Center (DIC) Description and Operation (Uplevel) Driver Information Center (DIC) Description and Operation (Base).

Instrument Cluster Description and Operation (Base)

Displays Test

Certain instrument cluster features are tested when the ignition is turned on in order to verify the features are working properly. The following occurs when the ignition is turned on:

- The ABS indicator illuminates briefly.
- The battery indicator illuminates briefly.
- The brake indicator illuminates briefly.
- The fuel level low indicator illuminates briefly.
- The oil pressure low indicator illuminates briefly.
- The park assist service indicator illuminates briefly.
- The security indicator illuminates briefly.
- The tire pressure low indicator illuminates briefly.
- The electronic stability control service indicator illuminates briefly.

Indicators and Warning Messages

Refer to Indicator/Warning Message Description and Operation.

Engine Coolant Temperature Gauge

The instrument cluster displays the engine coolant temperature as determined by the engine control module (ECM). The ECM sends the engine coolant temperature information via a High Speed CAN-Bus signal to the body control module (BCM). The BCM then sends the information via a Low Speed CAN-Bus signal to the instrument cluster to display the engine coolant temperature. The engine coolant temperature gauge defaults to 40°C (104°F) or below if:

- The ECM detects a malfunction in the engine coolant temperature sensor circuit.
- The BCM detects a loss of serial data communications with the ECM.
- The instrument cluster detects a loss of serial data communications with the BCM.

Fuel Level Gauge

The instrument cluster displays the fuel level based on the information from the ECM. The ECM converts the data from the fuel level sensors to a fuel level signal. The ECM sends the fuel level signal via a High Speed CAN-Bus signal to the BCM. The BCM then sends the information via a Low Speed CAN-Bus signal to the instrument cluster to display the fuel level. If the fuel level falls under 11% the instrument cluster switches on the low fuel level indicator. The fuel gauge defaults to empty if:

- The ECM detects a malfunction in the fuel level sensor circuit.
- The BCM detects a loss of serial data communications with the ECM.
- The instrument cluster detects a loss of serial data communications with the BCM.

Speedometer

The instrument cluster displays the vehicle speed based on the information from the ECM. The ECM sends the vehicle speed information via a High Speed CAN-Bus signal to the BCM. The BCM then sends the vehicle speed information via a Low Speed CAN-Bus signal to the instrument cluster in order to display the vehicle speed, either in kilometers or miles, based on the vehicle requirements. The speedometer defaults to 0 km/h (0 MPH) if:

- The BCM detects a loss of serial data communications with the ECM.
- The instrument cluster detects a loss of serial data communications with the BCM.

Tachometer

The instrument cluster displays the engine speed based on the information from the ECM. The ECM converts the data from the engine speed sensor to an engine revolution signal. The ECM sends the engine speed information via a High Speed CAN-Bus signal to the BCM. The BCM then sends the information via a Low Speed CAN-Bus signal to the instrument cluster to display the engine speed. The tachometer defaults to 0 RPM if:

- The ECM detects a malfunction in the engine speed sensor circuit.
- The BCM detects a loss of serial data communications with the ECM.
- The instrument cluster detects a loss of serial data communications with the BCM.

Driver Information Center Display

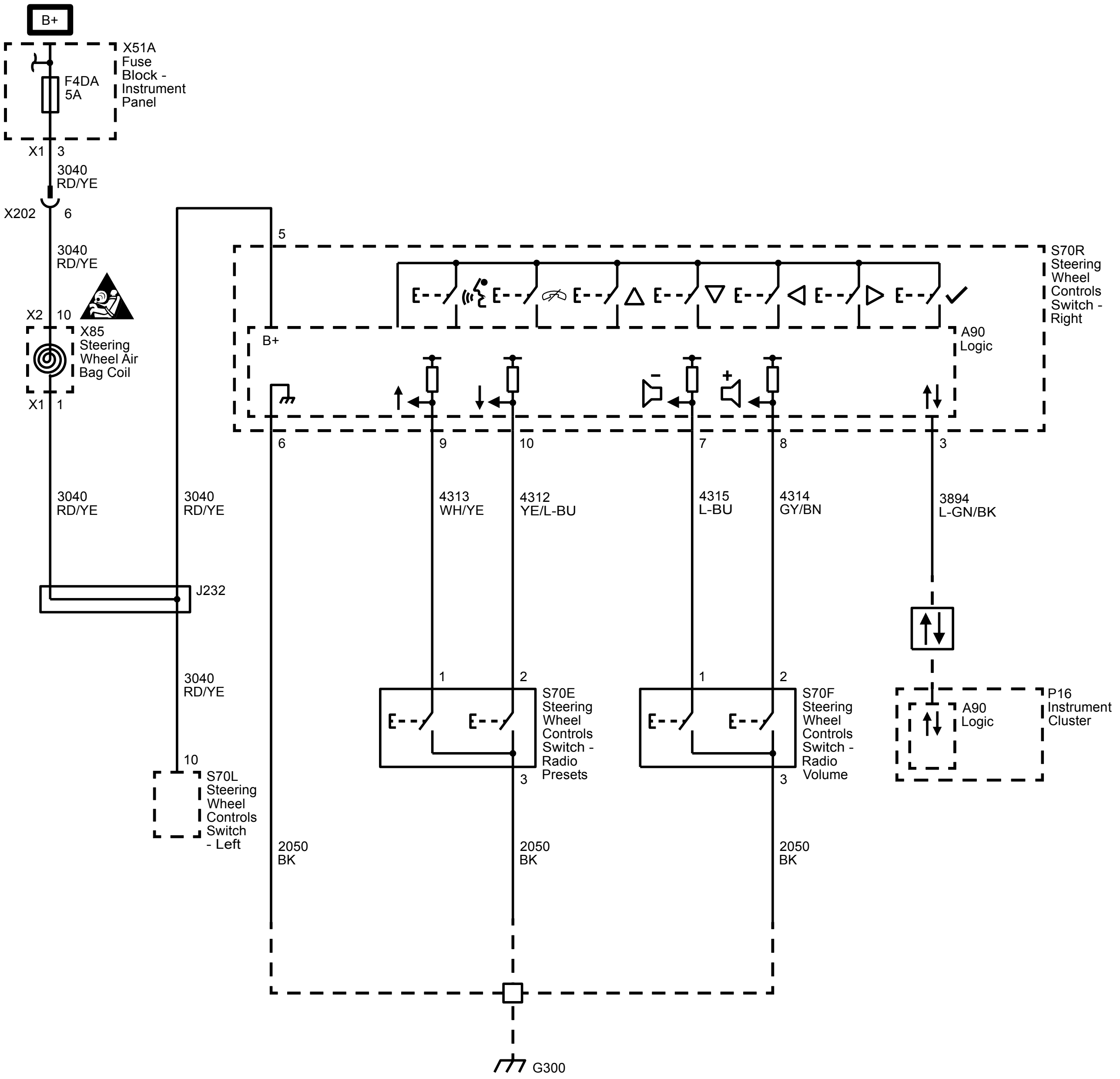
In the lower middle of the instrument cluster, an additional display is installed. Its task is to give additional information, such as an odometer or error codes. This part of the instrument cluster is available in 4 different variants, mostly depending on the assembled engine. For further information refer to Driver Information Center (DIC) Description and Operation (Uplevel)Driver Information Center (DIC) Description and Operation (Base).

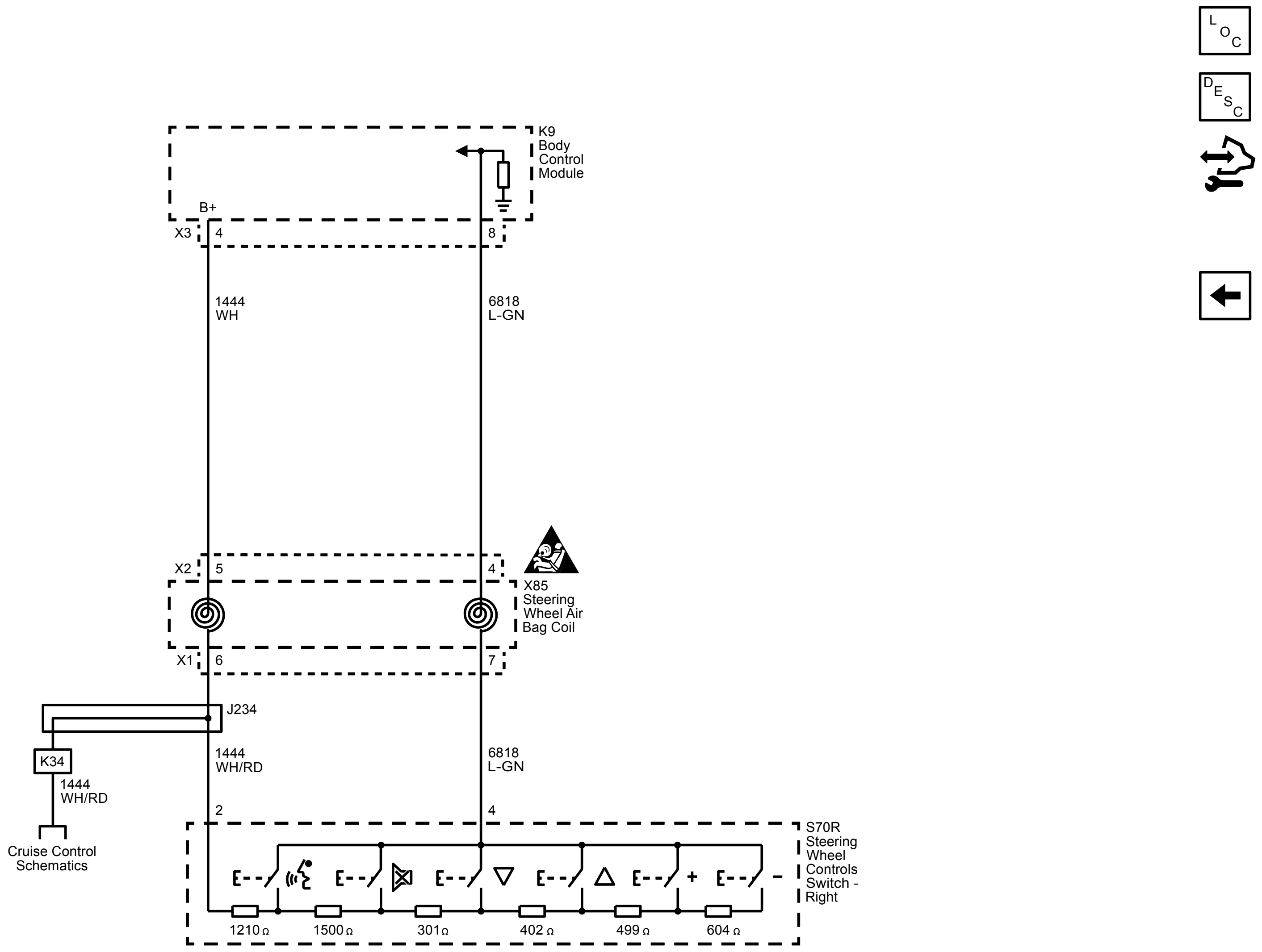
Secondary and Configurable Customer Controls

Schematic and Routing Diagrams

Steering Wheel Secondary/Configurable Control Schematics

Steering Wheel Controls with LIN (W1Y)

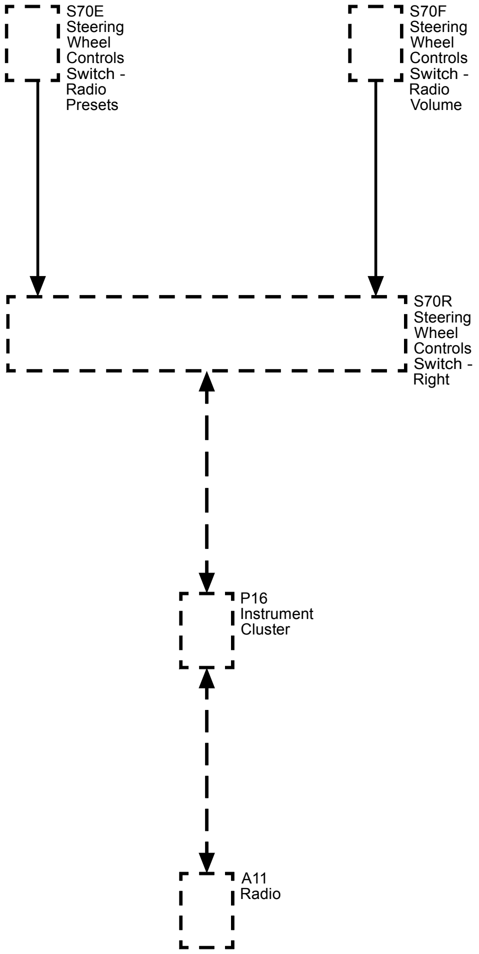

B+
X51A Fuse Block - Instrument Panel
F4DA 5A
X1 3
3040 RD/YE
X202 6
3040 RD/YE
X2 10
X85 Steering Wheel Air Bag Coil
X1 1
3040 RD/YE
3040 RD/YE
J232
3040 RD/YE
10
S70L Steering Wheel Controls Switch - Left
5
S70R Steering Wheel Controls Switch - Right
B+
A90 Logic
6
9
10
7
8
3
4313 WH/YE
4312 YE/L-BU
4315 L-BU
4314 GY/BN
3894 L-GN/BK
1
2
S70E Steering Wheel Controls Switch - Radio Presets
3
1
2
S70F Steering Wheel Controls Switch - Radio Volume
3
A90 Logic
P16 Instrument Cluster
2050 BK
2050 BK
2050 BK
G300


L O C
D E S C
K9 Body Control Module
B+
X3
4
8
1444 WH
6818 L-GN
X2
5
4
X85 Steering Wheel Air Bag Coil
X1
6
7
J234
K34
1444 WH/RD
1444 WH/RD
6818 L-GN
Cruise Control Schematics
2
4
S70R Steering Wheel Controls Switch - Right
+
-
1210 Ω
1500 Ω
301 Ω
402 Ω
499 Ω
604 Ω

Description and Operation

Steering Wheel Controls Description and Operation (with W1Y)

Secondary Controls Block Diagram


S70E Steering Wheel Controls Switch - Radio Presets
S70F Steering Wheel Controls Switch - Radio Volume
S70R Steering Wheel Controls Switch - Right
P16 Instrument Cluster
A11 Radio

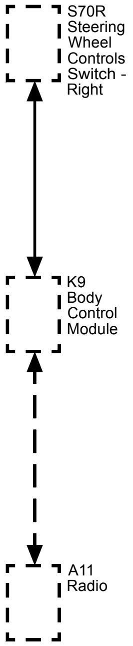
The steering wheel control switches duplicate the function of the primary controls of the associated component, through a network of momentary contact switches.

The Steering Wheel Controls are divided into a right-hand set and left-hand set. The right-hand switch is connected to the IPC LIN serial data and provides input from the left-hand, left-hand rear, and right-hand rear switches

The right-hand switch controller consists of UP/DOWN/LEFT/RIGHT directional, center “select” , Push-to-Talk, and Mute buttons. The LEFT/RIGHT buttons navigate the display regions of the cluster. The UP/DOWN buttons navigate the menus. The right-hand rear switch consists of volume up and volume down buttons. The left-hand rear switch consists of favorite up and favorite down buttons.

Steering Wheel Controls Description and Operation (without W1Y)

Steering Wheel Controls Block Diagram



The steering wheel control switches duplicate the function of the primary controls of the associated component, through a network of momentary contact switches and a series of resistors. The body control module (BCM) supplies voltage to the switches and monitors the return signal. When a switch is pressed, a specific voltage drops across the resistor unique to that switch. The BCM identifies the switch selected and sends a serial data message to the component controlled by the switch, activating the feature.

This section is intended to diagnose the circuits between the BCM and the steering wheel control switches. If the primary control for the device is inoperative, refer to the appropriate section for the component the steering wheel control switch is used for.

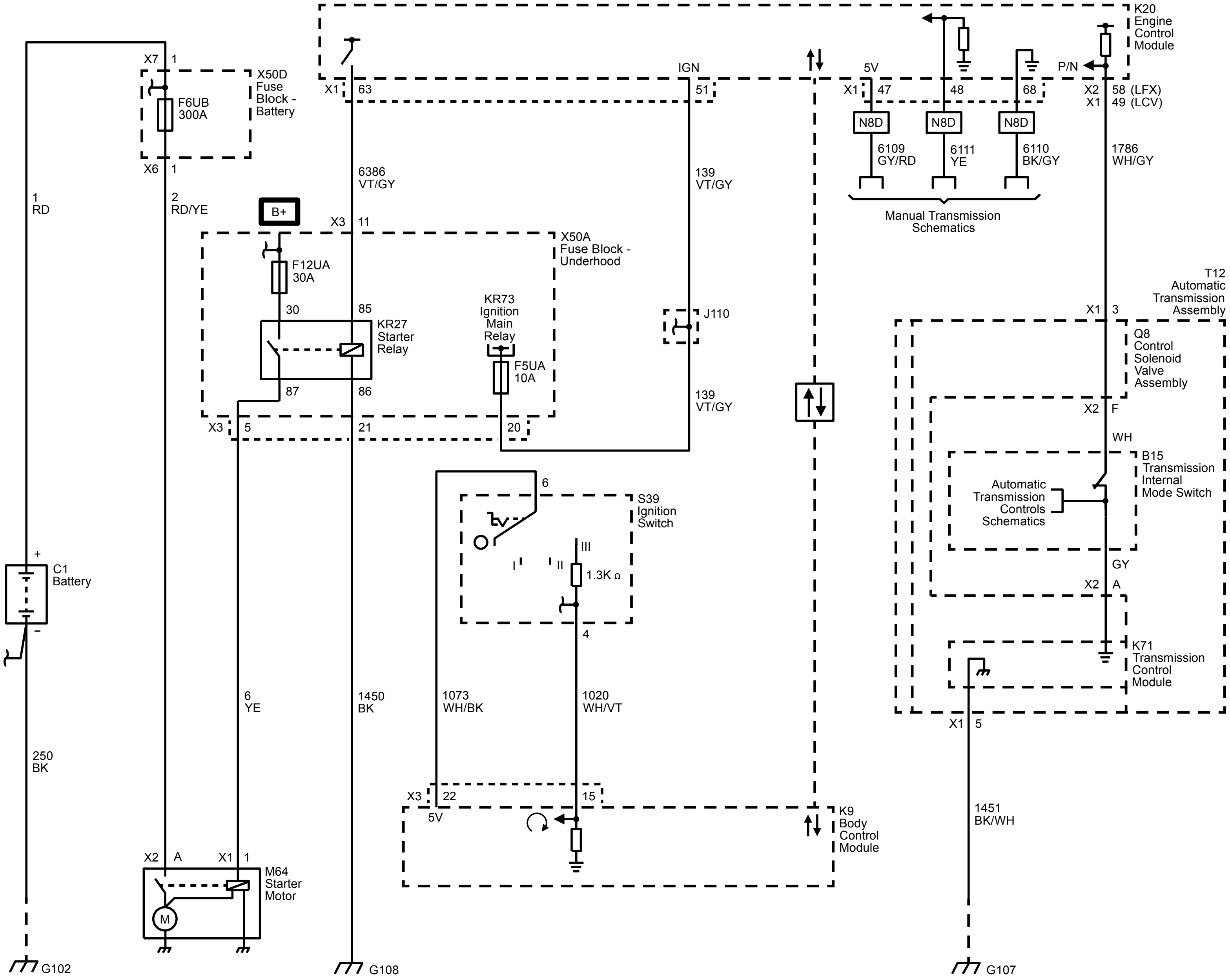
Engine/Propulsion

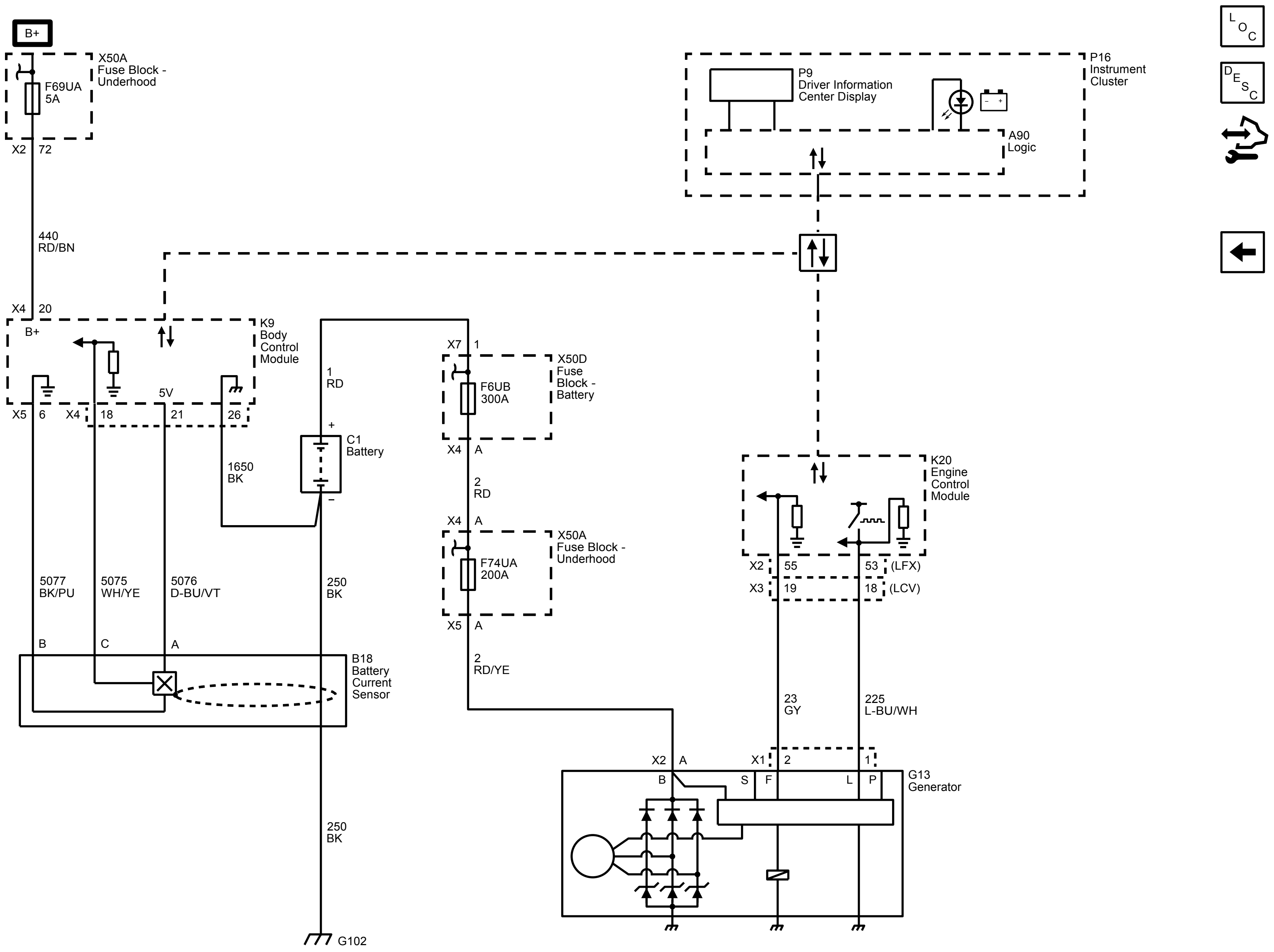
12 V Starting and Charging

Schematic and Routing Diagrams

Starting and Charging Schematics

Starting


X7 1
X50D Fuse Block - Battery
F6UB 300A
X6 1
1 RD
2 RD/YE
B+
X3 11
X50A Fuse Block - Underhood
F12UA 30A
30
85
KR27 Starter Relay
87
86
KR73 Ignition Main Relay
F5UA 10A
X3 5
21
20
X1 63
6386 VT/GY
IGN
51
139 VT/GY
J110
139 VT/GY
K20 Engine Control Module
5V
X1 47
48
68
N8D
N8D
N8D
6109 GY/RD
6111 YE
6110 BK/GY
Manual Transmission Schematics
P/N
X2 58 (LFX)
X1 49 (LCV)
1786 WH/GY
T12 Automatic Transmission Assembly
X1 3
Q8 Control Solenoid Valve Assembly
X2 F
WH
B15 Transmission Internal Mode Switch
Automatic Transmission Controls Schematics
GY
X2 A
K71 Transmission Control Module
X1 5
1451 BK/WH
G107
6
S39 Ignition Switch
III
I
II
1.3K Ω
4
+
C1 Battery
−
250 BK
6 YE
1450 BK
1073 WH/BK
1020 WH/VT
X3 22
15
5V
K9 Body Control Module
X2 A
X1 1
M64 Starter Motor
M
G102
G108


B+
X50A
Fuse Block - Underhood
F69UA
5A
X2 72
440
RD/BN
X4 20
B+
K9
Body
Control
Module
5V
X5 6
X4 18
21
26
1
RD
1650
BK
+
C1
Battery
−
5077
BK/PU
5075
WH/YE
5076
D-BU/VT
250
BK
B C A
B18
Battery
Current
Sensor
250
BK
G102
X7 1
X50D
Fuse
Block -
Battery
F6UB
300A
X4 A
2
RD
X4 A
X50A
Fuse Block -
Underhood
F74UA
200A
X5 A
2
RD/YE
P9
Driver Information
Center Display
P16
Instrument
Cluster
A90
Logic
K20
Engine
Control
Module
X2 55
53 (LFX)
X3 19
18 (LCV)
23
GY
225
L-BU/WH
X2 A
X1 2
1
B S F L P
G13
Generator
LOC
DESC

Description and Operation

Charging System Description and Operation

Electrical Power Management Overview

The electrical power management system is designed to monitor and control the charging system and send diagnostic messages to alert the driver of possible problems with the battery and generator. This electrical power management system primarily utilizes existing on-board computer capability to maximize the effectiveness of the generator, to manage the load, improve battery state-of-charge and life, and minimize the system's impact on fuel economy. The electrical power management system performs 3 functions:

- It monitors the battery voltage and estimates the battery condition.
- It takes corrective actions by boosting idle speeds, and adjusting the regulated voltage.
- It performs diagnostics and driver notification.

The battery condition is estimated during ignition-off and during ignition-on. During ignition-off the state-of-charge of the battery is determined by measuring the open-circuit voltage. The state-of-charge is a function of the acid concentration and the internal resistance of the battery, and is estimated by reading the battery open circuit voltage when the battery has been at rest for several hours.

The state-of-charge can be used as a diagnostic tool to tell the customer or the dealer the condition of the battery. Throughout ignition-on, the algorithm continuously estimates state-of-charge based on adjusted net amp hours, battery capacity, initial state-of-charge, and temperature.

While running, the battery degree of discharge is primarily determined by a battery current sensor, which is integrated to obtain net amp hours.

In addition, the electrical power management function is designed to perform regulated voltage control to improve battery state-of-charge, battery life, and fuel economy. This is accomplished by using knowledge of the battery state-of-charge and temperature to set the charging voltage to an optimum battery voltage level for recharging without detriment to battery life.

The Charging System Description and Operation is divided into 3 sections. The first section describes the charging system components and their integration into the electrical power management. The second section describes charging system operation. The third section describes the instrument panel cluster operation of the charge indicator, driver information center messages, and voltmeter operation.

Charging System Components

Generator

The generator is a serviceable component. If there is a diagnosed failure of the generator it must be replaced as an assembly. The engine drive belt drives the generator. When the rotor is spun it induces an alternating current (AC) into the stator windings. The AC voltage is then sent through a series of diodes for rectification. The rectified voltage has been converted into a direct current (DC) for use by the vehicles electrical system to maintain electrical loads and the battery charge. The voltage regulator integral to the generator controls the output of the generator. It is not serviceable. The voltage regulator controls the amount of current provided to the rotor. If the generator has field control circuit failure, the generator defaults to an output voltage of 13.8 V.

Body Control Module (BCM)

The body control module (BCM) is a GMLAN device. It communicates with the engine control module (ECM) and the instrument panel cluster for electrical power management (electrical power management) operation. The BCM determines the output of the generator and sends the information to the ECM for control of the generator turn on signal circuit. It monitors the generator field duty cycle signal circuit information sent from the ECM for control of the generator. It monitors a battery current sensor, the battery positive voltage circuit, and estimated battery temperature to determine battery state of charge. The BCM performs idle boost.

Battery Current Sensor

The battery current sensor is a serviceable component that is connected to the negative battery cable at the battery. The battery current sensor is a 3-wire hall effect current sensor. The battery current sensor monitors the battery current. It directly inputs to the BCM. It creates a 5 volt pulse width modulation (PWM) signal of 128 Hz with a duty cycle of 0–100 percent. Normal duty cycle is between 5–95 percent. Between 0–5 percent and 95–100 percent are for diagnostic purposes.

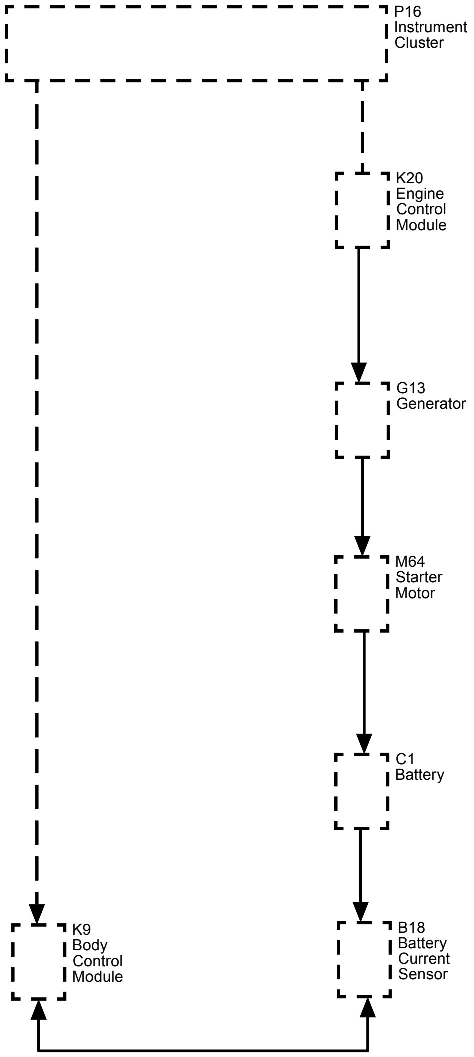
Engine Control Module (ECM)

When the engine is running, the generator turn-on signal is sent to the generator from the ECM, turning on the regulator. The generator's voltage regulator controls current to the rotor, thereby controlling the output voltage. The rotor current is proportional to the electrical pulse width supplied by the regulator. When the engine is started, the regulator senses generator rotation by detecting AC voltage at the stator through an internal wire. Once the engine is running, the regulator varies the field current by controlling the pulse width. This regulates the generator output voltage for proper battery charging and electrical system operation. The generator field duty terminal is connected internally to the voltage regulator and externally to the ECM. When the voltage regulator detects a charging system problem, it grounds this circuit to signal the ECM that a problem exists. The ECM monitors the generator field duty cycle signal circuit, and receives control decisions based on information from the BCM.

Instrument Panel Cluster

The instrument panel cluster provides the customer notification in case a concern with the charging system. There are 2 means of notification, a charge indicator and a driver information center message of SERVICE BATTERY CHARGING SYSTEM if equipped.

Charging System Block Diagram


P16
Instrument
Cluster
K20
Engine
Control
Module
G13
Generator
M64
Starter
Motor
C1
Battery
K9
Body
Control
Module
B18
Battery
Current
Sensor

Charging System Operation

The purpose of the charging system is to maintain the battery charge and vehicle loads. There are 6 modes of operation and they include:

- Battery Sulfation Mode
- Charge Mode
- Fuel Economy Mode
- Head lamp Mode
- Start Up Mode
- Voltage Reduction Mode

The engine control module (ECM) controls the generator through the generator turn ON signal circuit. The ECM monitors the generator performance though the generator field duty cycle signal circuit. The signal is a pulse width modulation (PWM) signal of 128 Hz with a duty cycle of 0–100 percent. Normal duty cycle is between 5–95 percent. Between 0–5 percent and 95–100 percent are for diagnostic purposes. The following table shows the commanded duty cycle and output voltage of the generator:

Commanded Duty Cycle	Generator Output Voltage
10%	11 V
20%	11.56 V
30%	12.12 V

40%	12.68 V
50%	13.25 V
60%	13.81 V
70%	14.37 V
80%	14.94 V
90%	15.5 V

The generator provides a feedback signal of the generator voltage output through the generator field duty cycle signal circuit to the ECM. This information is sent to the body control module (BCM). The signal is PWM signal of 128 Hz with a duty cycle of 0–100 percent. Normal duty cycle is between 5–99 percent. Between 0–5 percent and 100 percent are for diagnostic purposes.

Battery Sulfation Mode

The BCM will enter this mode when the interpreted generator output voltage is less than 13.2 V for 45 minutes. When this condition exists the BCM will enter Charge Mode for 2–3 minutes. The BCM will then determine which mode to enter depending on voltage requirements.

Charge Mode

The BCM will enter Charge Mode when ever one of the following conditions are met.

- The wipers are ON for more than 3 seconds.
- GMLAN (Climate Control Voltage Boost Mode Request) is true, as sensed by the HVAC control head. High speed cooling fan, rear defogger and HVAC high speed blower operation can cause the BCM to enter the Charge Mode.
- The estimated battery temperature is less than 0°C (32°F).
- Battery State of Charge is less than 80 percent.
- Vehicle speed is greater than 145 km/h (90 mph)
- Current sensor fault exists.
- System voltage was determined to be below 12.56 V

When any one of these conditions is met, the system will set targeted generator output voltage to a charging voltage between 13.9–15.5 V, depending on the battery state of charge and estimated battery temperature.

Fuel Economy Mode

The BCM will enter Fuel Economy Mode when the estimated battery temperature is at least 0°C (32°F) but less than or equal to 80°C (176°F), the calculated battery current is less than 15 amperes and greater than −8 amperes, and the battery state-of-charge is greater than or equal to 80 percent. Its targeted generator output voltage is the open circuit voltage of the battery and can be between 12.5–13.1 V. The BCM will exit this mode and enter Charge Mode when any of the conditions described above are present.

Head lamp Mode

The BCM will enter Head lamp Mode when ever the head lamps are ON (high or low beams). Voltage will be regulated between 13.9–14.5 V.

Start Up Mode

When the engine is started the BCM sets a targeted generator output voltage of 14.5 V for 30 seconds.

Voltage Reduction Mode

The BCM will enter Voltage Reduction Mode when the calculated ambient air temperature is above 0°C (32°F). The calculated battery current is less than 1 ampere and greater than −7 amperes, and the generator field duty cycle is less than 99 percent. Its targeted generator output voltage is 12.9 V. The BCM will exit this mode once the criteria are met for Charge Mode.

Instrument Panel Cluster Operation

Charge Indicator Operation

The instrument panel cluster illuminates the charge indicator and displays a warning message in the driver information center if equipped, when the one or more of the following occurs:

- The engine control module (ECM) detects that the generator output is less than 11 V or greater than 16 V. The instrument panel cluster receives a GMLAN message from the ECM requesting illumination.
- The instrument panel cluster determines that the system voltage is less than 11 V or greater than 16 V for more than 30 seconds. The instrument panel cluster receives a GMLAN message from the body control module (BCM) indicating there is a system voltage range concern.
- The instrument panel cluster performs the displays test at the start of each ignition cycle. The indicator illuminates for approximately 3 seconds.

Display Message: BATTERY NOT CHARGING SERVICE CHARGING SYSTEM or SERVICE BATTERY CHARGING SYSTEM

The BCM and the ECM will send a serial data message to the driver information center for the BATTERY NOT CHARGING SERVICE CHARGING SYSTEM or SERVICE BATTERY CHARGING SYSTEM message to be displayed. It is commanded ON when a charging system DTC is a current DTC. The message is turned OFF when the conditions for clearing the DTC have been met.

Electrical Power Management Description and Operation

Electrical Power Management

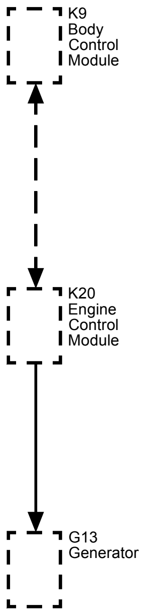
The electrical power management is used to monitor and control the charging system and alert the driver of possible problems within the charging system. The electrical power management system makes the most efficient use of the generator output, improves the battery state-of-charge, extends battery life, and manages system electrical loads.

The load shed operation is a means of reducing electrical loads during a low voltage or low battery state-of-charge condition.

The idle boost operation is a means of improving generator performance during a low voltage or low battery state-of-charge condition.

Each electrical power management function, either idle boost or load shed, is discrete. No two functions are active at the same time. Idle boost is activated in incremental steps, idle boost 1 must be active before idle boost 2 can be active. The criteria used by the body control module (BCM) to regulate electrical power management are outlined below:

Electrical Power Management Block Diagram



Function	Battery Temperature Calculation	Battery Voltage Calculation	Amp-Hour Calculation	Action Taken
Idle Boost 1 Start	Less Than −15°C (5°F)	Less Than 13 V	—	First level Idle boost requested
Idle Boost 1 Start	—	—	Battery has a net loss greater than 0.6 Ah	First level Idle boost requested
Idle Boost 1 Start	—	Less Than 10.9 V	—	First level Idle boost requested
Idle Boost 1 End	Greater Than −15°C (5°F)	Greater Than −12 V	Battery has a net loss less than 0.2 Ah	First level Idle boost request cancelled
Load Shed 1 Start	—	—	Battery has a net loss of 4 Ah	Rear Defrost, Heated Mirrors, Heated Seats cycled OFF for 20% of their cycle

Load Shed 1 Start	—	Less Than 10.9 V	—	Rear Defrost, Heated Mirrors, Heated Seats cycled OFF for 20% of their cycle
Load Shed 1 End	—	Greater Than 12 V	Battery has a net loss of less than 2 Ah	Clear Load Shed 1
Idle Boost 2 Start	—	—	Battery has a net loss greater than 1.6 Ah	Second level Idle boost requested
Idle Boost 2 Start	—	Less Than 10.9 V	—	Second level Idle boost requested
Idle Boost 2 End	—	Greater Than 12 V	Battery has a net loss less than 0.8 Ah	Second level Idle boost request cancelled
Idle Boost 3 Start	—	—	Battery has a net loss of 10 Ah	Third level Idle boost requested
Idle Boost 3 Start	—	Less Than 10.9 V	—	Third level Idle boost requested
Idle Boost 3 End	—	Greater Than 12 V	Battery has a net loss of less than 6.0 Ah	Third level Idle boost request cancelled
Load Shed 2 Start	—	Less Than 10 V	Battery has a net loss greater than 12 Ah	Rear Defrost, Heated Mirrors, Heated Seats cycled OFF for 50% of their cycle. The BATTERY SAVER ACTIVE message will be displayed on the DIC
Load Shed 2 Start	—	Less Than 10.9 V	—	Rear Defrost, Heated Mirrors, Heated Seats cycled OFF for 50% of their cycle. The BATTERY SAVER ACTIVE message will be displayed on the DIC
Load Shed 2 End	—	Greater Than 12.6 V	Battery has a net loss of less than 10.5 Ah	Clear Load Shed 2
Load Shed 3 Start	—	Less Than 11.9 V	Battery has a net loss greater than 20 Ah	Rear Defrost, Heated Mirrors, Heated Seats cycled OFF for 100% of their cycle. The BATTERY SAVER ACTIVE message will be displayed on the DIC
Load Shed 3 End	—	Greater Than 12.6 V	Battery has a net loss of less than 15 Ah	Clear Load Shed 3

Starting System Description and Operation

The starter motors are non-repairable starter motors. They have pole pieces that are arranged around the armature. Both solenoid windings are energized. The pull-in winding circuit is completed to the ground through the starter motor. The windings work together magnetically to pull and hold in the plunger. The plunger moves the shift lever. This action causes the starter drive assembly to rotate on the armature shaft spline as it engages with the flywheel ring gear on the engine. Moving at the same time, the plunger also closes the solenoid switch contacts in the starter solenoid. Full battery voltage is applied directly to the starter motor and it cranks the engine.

As soon as the solenoid switch contacts close, current stops flowing thorough the pull-in winding because battery voltage is applied to both ends of the windings. The hold-in winding remains energized. Its magnetic field is strong enough to hold the plunger, shift lever, starter drive assembly, and solenoid switch contacts in place to continue cranking the engine. When the engine starts, pinion overrun protects the armature from excessive speed until the switch is opened.

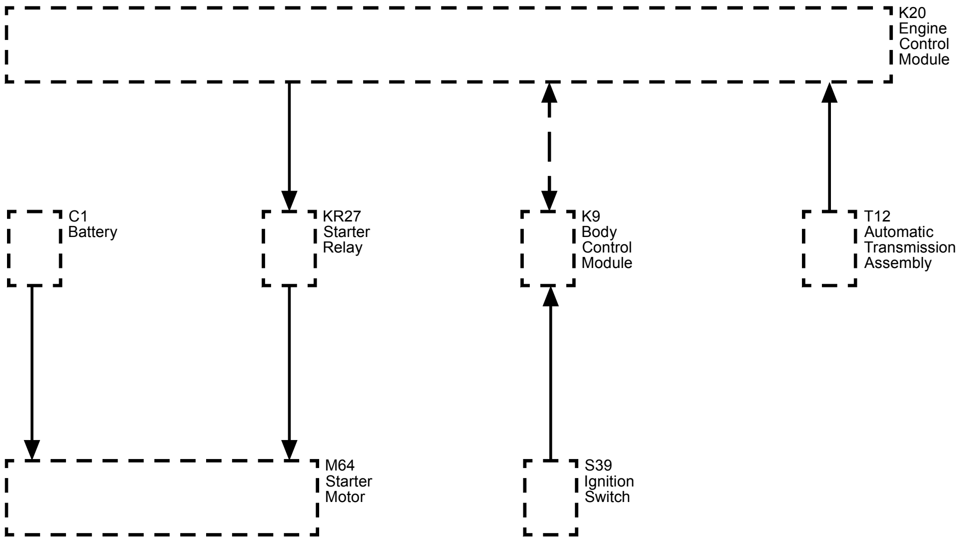
When the ignition switch is released from the START position, the START relay opens and battery voltage is removed from the starter solenoid S terminal. Current flows from the motor contacts through both windings to the ground at the end of the hold-in winding. However, the direction of the current flow through the pull-in winding is now opposite the direction of the current flow when the winding was first energized.

The magnetic fields of the pull-in and hold-in windings now oppose one another. This action of the windings, along with the help of the return spring, causes the starter drive assembly to disengage and the solenoid switch contacts to open simultaneously. As soon as the contacts open, the starter circuit is turned off.

Circuit Description (Key Start)

When the ignition switch is placed in the Start position, a discrete signal is supplied to the body control module (BCM) notifying it that the ignition is in the Start position. The BCM then sends a message to the engine control module (ECM) notifying it that CRANK has been requested. The ECM verifies that the transmission is in Park or Neutral. If it is, the ECM then supplies 12 V to the control circuit of the crank relay. When this occurs, battery positive voltage is supplied through the switch side of the crank relay to the S terminal of the starter solenoid.

Starting System Block Diagram

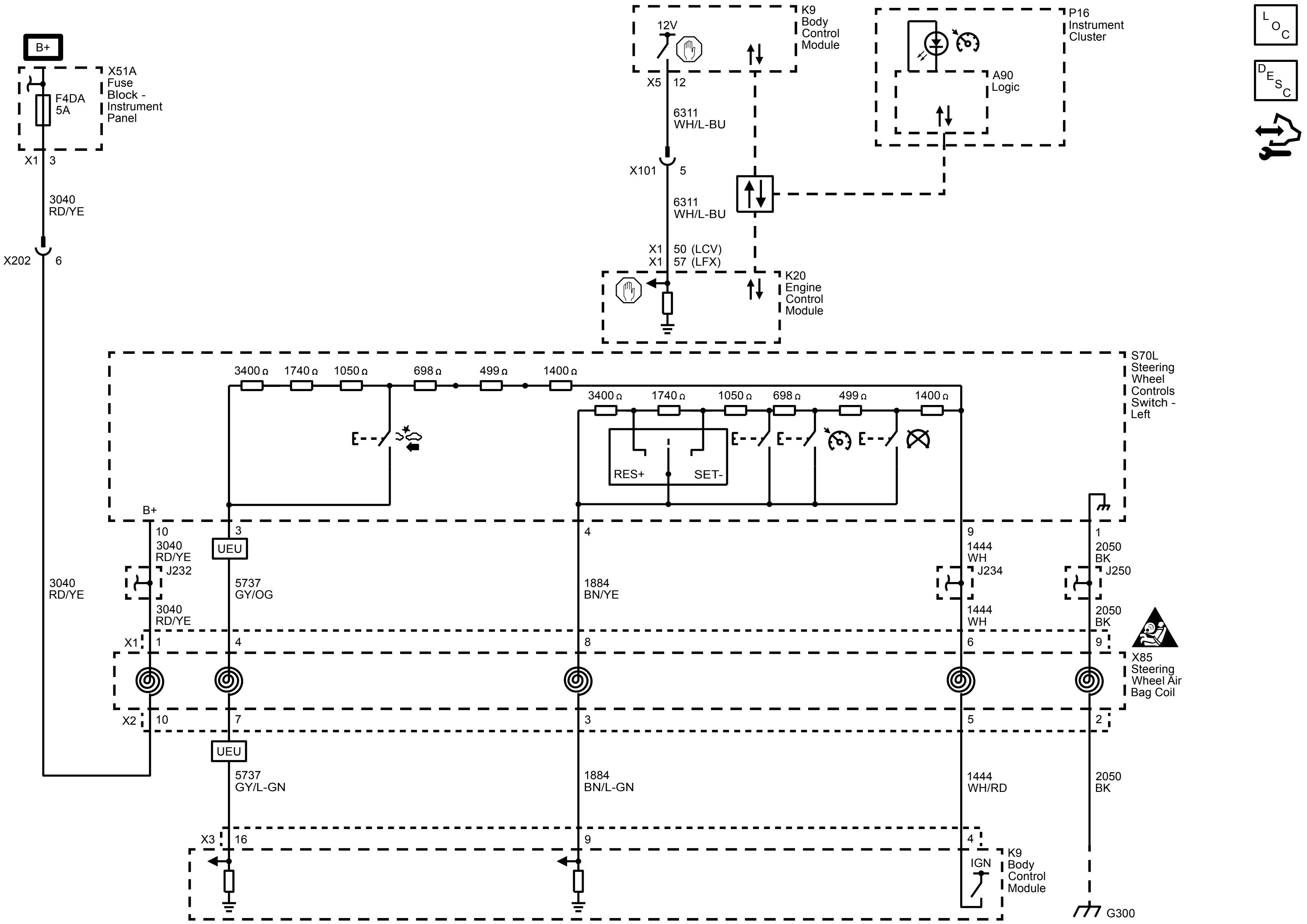


Cruise Control

Schematic and Routing Diagrams

Cruise Control Schematics

Cruise Control

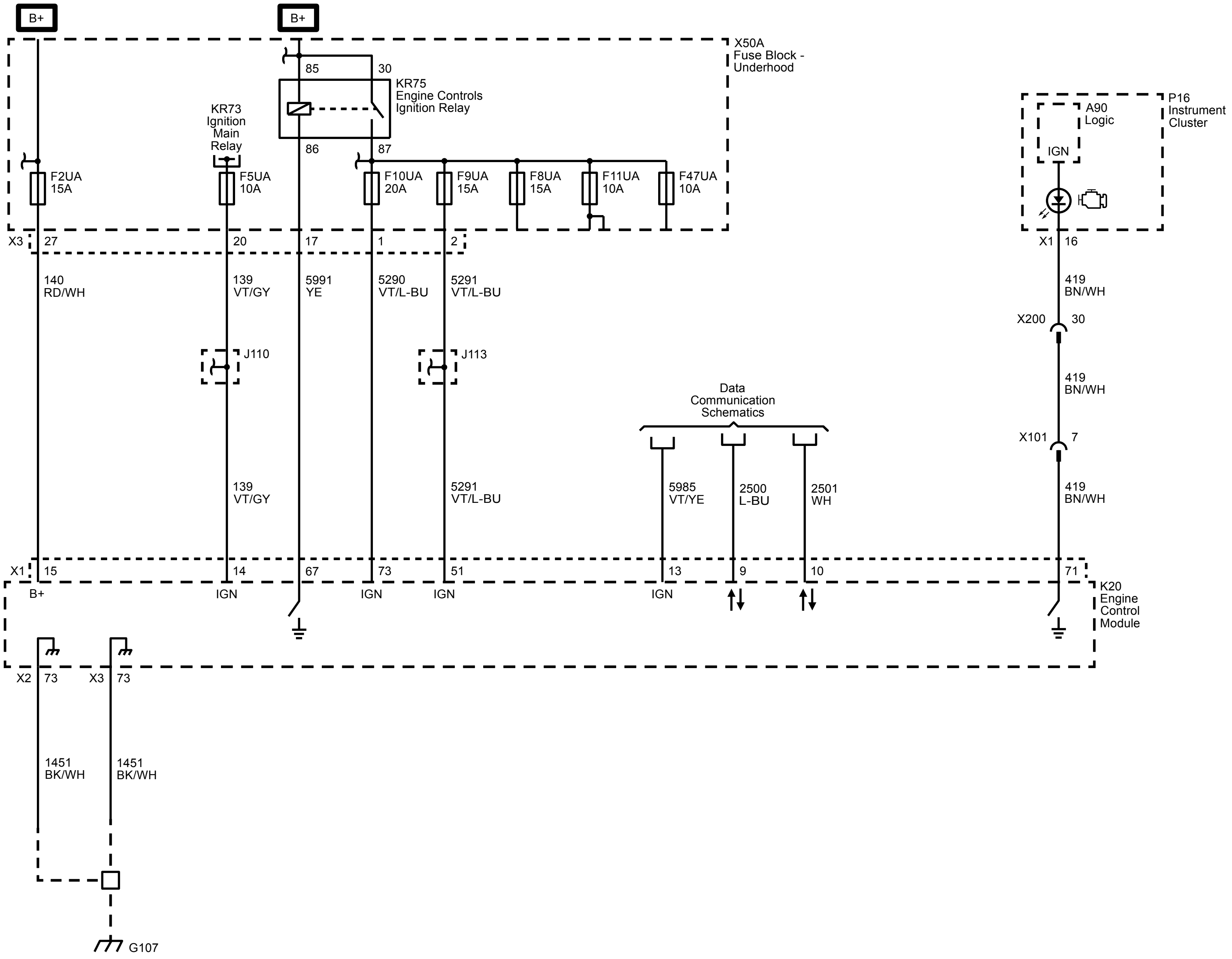

B+
X51A Fuse Block - Instrument Panel
F4DA 5A
X1 3
3040 RD/YE
X202 6
K9 Body Control Module
12V
X5 12
6311 WH/L-BU
X101 5
6311 WH/L-BU
X1 50 (LCV)
X1 57 (LFX)
K20 Engine Control Module
P16 Instrument Cluster
A90 Logic
S70L Steering Wheel Controls Switch - Left
3400 Ω
1740 Ω
1050 Ω
698 Ω
499 Ω
1400 Ω
3400 Ω
1740 Ω
1050 Ω
698 Ω
499 Ω
1400 Ω
RES+
SET-
B+
10
3040 RD/YE
J232
3040 RD/YE
3040 RD/YE
3
UEU
5737 GY/OG
4
1884 BN/YE
9
1444 WH
J234
1444 WH
1
2050 BK
J250
2050 BK
X1 1
4
8
6
9
X85 Steering Wheel Air Bag Coil
X2 10
7
3
5
2
UEU
5737 GY/L-GN
1884 BN/L-GN
1444 WH/RD
2050 BK
X3 16
9
4
IGN
K9 Body Control Module
G300
LOC
DESC

Engine Controls and Fuel - 2.5L (LCV)

Schematic and Routing Diagrams

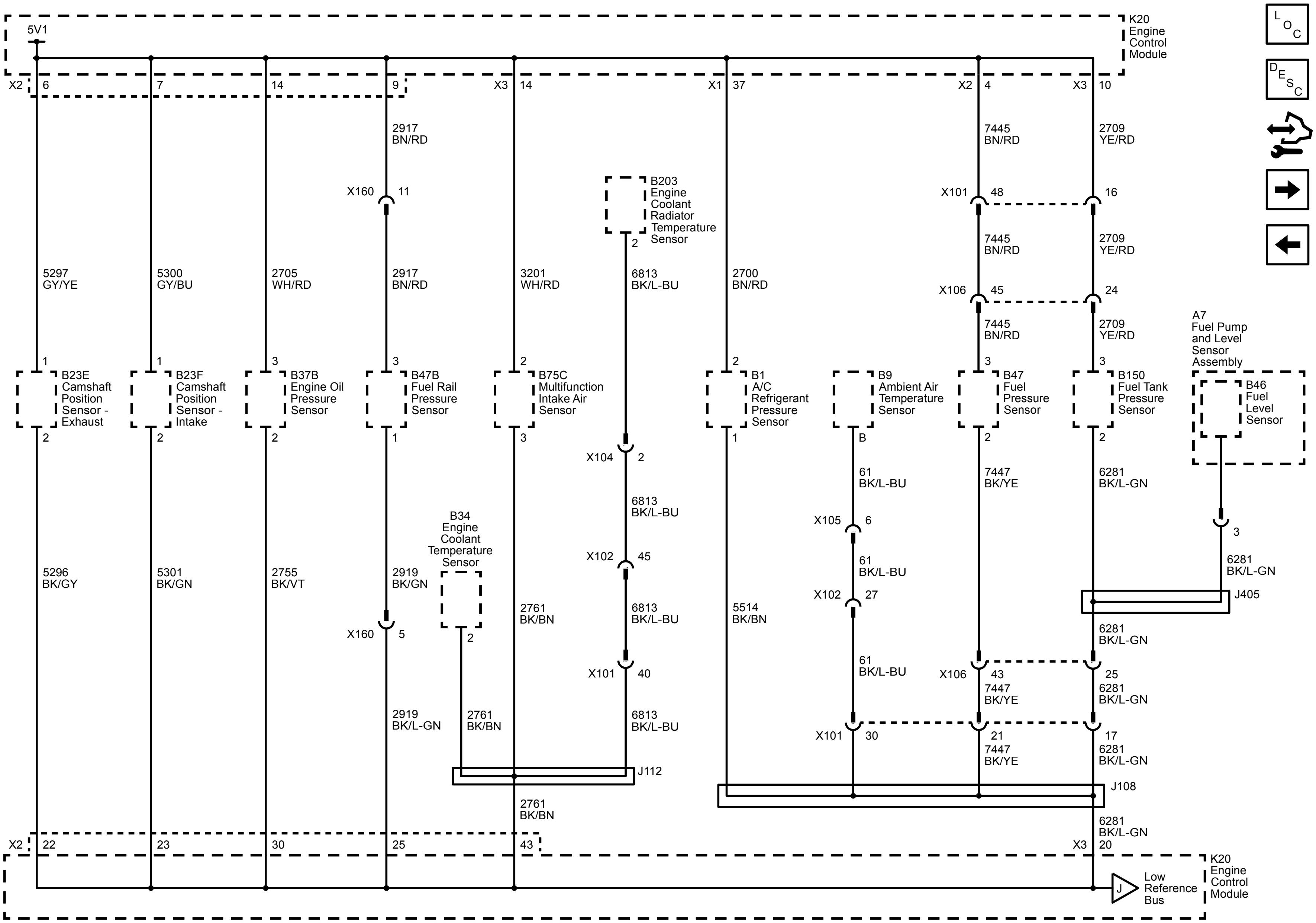
Engine Controls Schematics

Power, Ground, Serial Data, and MIL



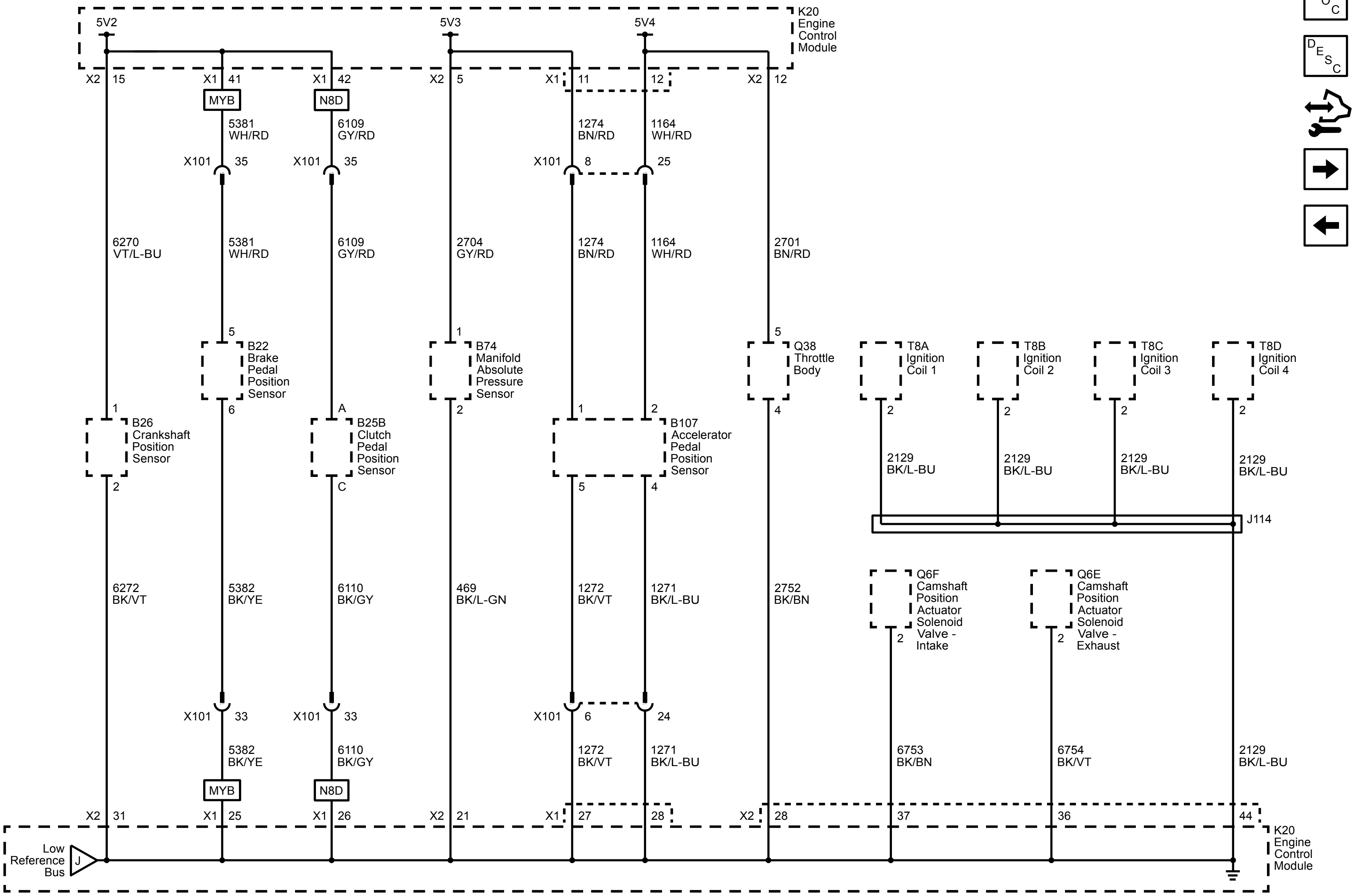
B+
B+
X50A
Fuse Block - Underhood
85
30
KR75
Engine Controls Ignition Relay
86
87
KR73
Ignition Main Relay
F2UA
15A
F5UA
10A
F10UA
20A
F9UA
15A
F8UA
15A
F11UA
10A
F47UA
10A
X3
27
20
17
1
2
140
RD/WH
139
VT/GY
5991
YE
5290
VT/L-BU
5291
VT/L-BU
J110
J113
139
VT/GY
5291
VT/L-BU
Data Communication Schematics
5985
VT/YE
2500
L-BU
2501
WH
A90
Logic
P16
Instrument Cluster
IGN
X1
16
419
BN/WH
X200
30
419
BN/WH
X101
7
419
BN/WH
X1
15
14
67
73
51
13
9
10
71
B+
IGN
IGN
IGN
IGN
K20
Engine Control Module
X2
73
X3
73
1451
BK/WH
1451
BK/WH
G107

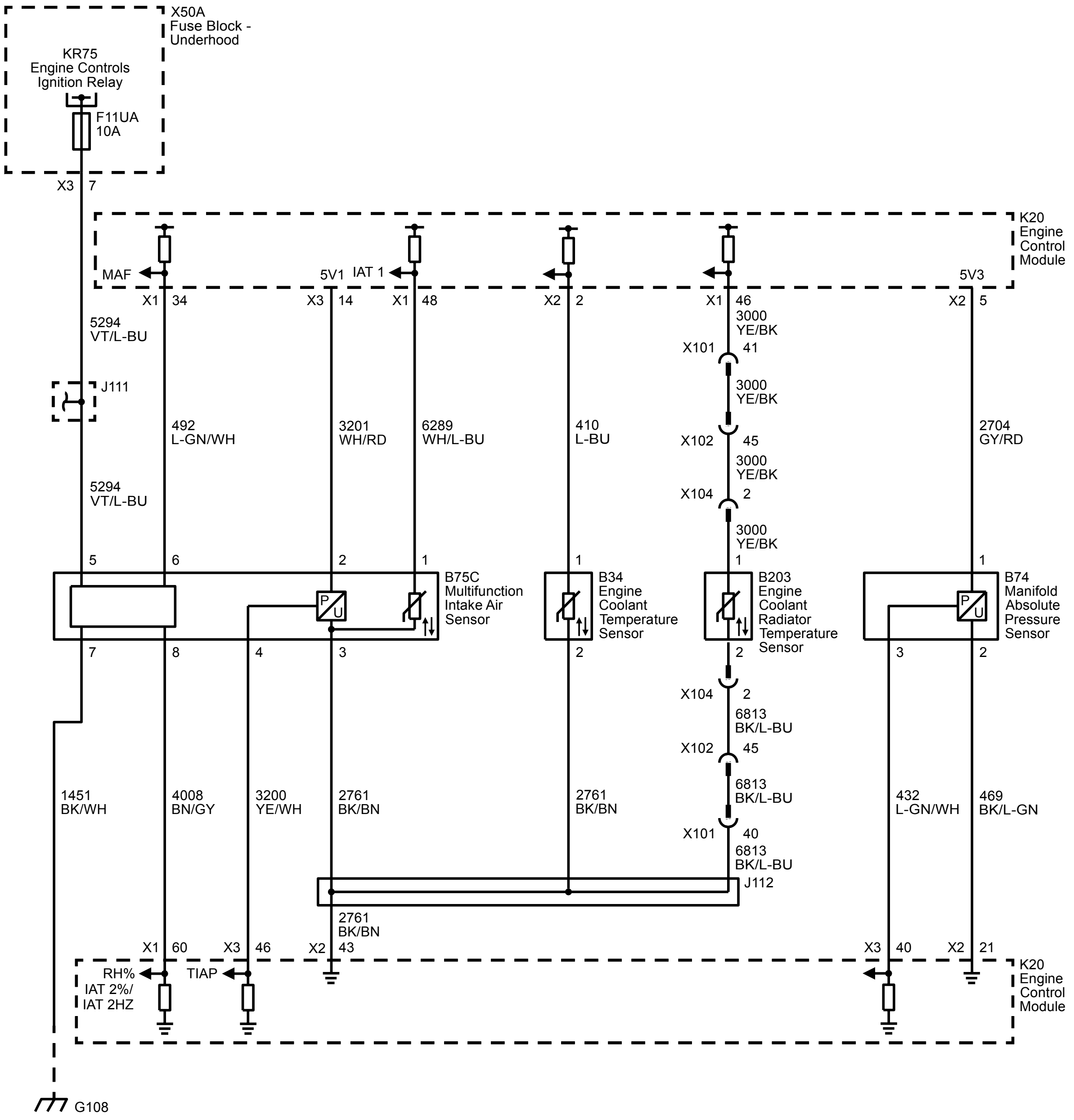
5V1 and Low Reference Bus (1 of 2)

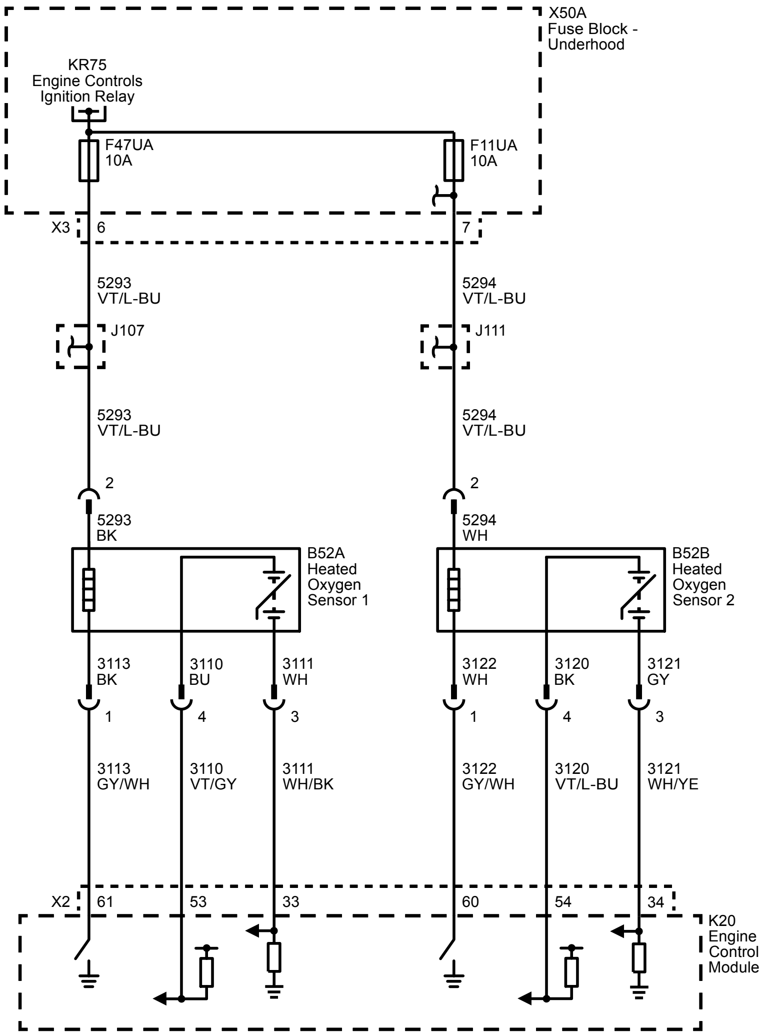

K20
Engine
Control
Module
5V1
X2
6
7
14
9
X3
14
X1
37
X2
4
X3
10
2917
BN/RD
X160
11
B203
Engine
Coolant
Radiator
Temperature
Sensor
2
7445
BN/RD
2709
YE/RD
X101
48
16
7445
BN/RD
2709
YE/RD
X106
45
24
7445
BN/RD
2709
YE/RD
5297
GY/YE
5300
GY/BU
2705
WH/RD
2917
BN/RD
3201
WH/RD
6813
BK/L-BU
2700
BN/RD
A7
Fuel Pump
and Level
Sensor
Assembly
1
B23E
Camshaft
Position
Sensor -
Exhaust
2
1
B23F
Camshaft
Position
Sensor -
Intake
2
3
B37B
Engine Oil
Pressure
Sensor
2
3
B47B
Fuel Rail
Pressure
Sensor
1
2
B75C
Multifunction
Intake Air
Sensor
3
2
B1
A/C
Refrigerant
Pressure
Sensor
1
B9
Ambient Air
Temperature
Sensor
B
3
B47
Fuel
Pressure
Sensor
2
3
B150
Fuel Tank
Pressure
Sensor
2
B46
Fuel
Level
Sensor
X104
2
6813
BK/L-BU
61
BK/L-BU
7447
BK/YE
6281
BK/L-GN
X105
6
3
B34
Engine
Coolant
Temperature
Sensor
2
X102
45
6813
BK/L-BU
61
BK/L-BU
6281
BK/L-GN
5296
BK/GY
5301
BK/GN
2755
BK/VT
2919
BK/GN
X102
27
J405
X160
5
2761
BK/BN
6813
BK/L-BU
5514
BK/BN
6281
BK/L-GN
X101
40
61
BK/L-BU
X106
43
25
7447
BK/YE
6281
BK/L-GN
2919
BK/L-GN
2761
BK/BN
6813
BK/L-BU
X101
30
21
17
7447
BK/YE
6281
BK/L-GN
J112
J108
2761
BK/BN
6281
BK/L-GN
X2
22
23
30
25
43
X3
20
K20
Engine
Control
Module
J
Low
Reference
Bus

5V2, 5V3, and 5V4, and Low Reference Bus (2 of 2)

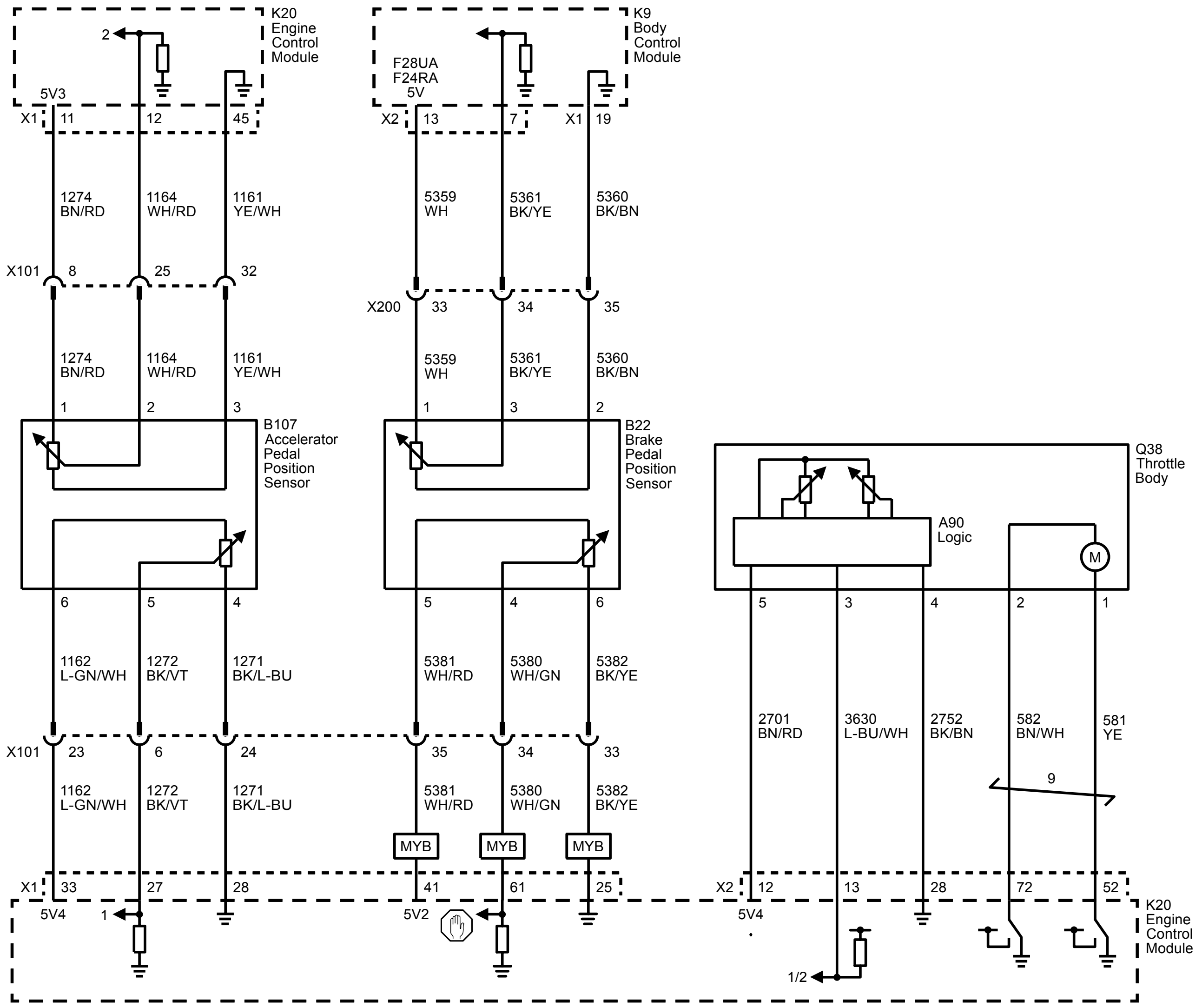
LOC
DESC
→
←


K20 Engine Control Module
5V2
5V3
5V4
X2 15
X1 41
X1 42
X2 5
X1 11
12
X2 12
MYB
N8D
5381 WH/RD
6109 GY/RD
1274 BN/RD
1164 WH/RD
X101 35
X101 35
X101 8
25
6270 VT/L-BU
5381 WH/RD
6109 GY/RD
2704 GY/RD
1274 BN/RD
1164 WH/RD
2701 BN/RD
5
B22 Brake Pedal Position Sensor
6
1
B74 Manifold Absolute Pressure Sensor
2
5
Q38 Throttle Body
4
T8A Ignition Coil 1
T8B Ignition Coil 2
T8C Ignition Coil 3
T8D Ignition Coil 4
2
2
2
2
1
B26 Crankshaft Position Sensor
2
A
B25B Clutch Pedal Position Sensor
C
1
2
B107 Accelerator Pedal Position Sensor
5
4
2129 BK/L-BU
2129 BK/L-BU
2129 BK/L-BU
2129 BK/L-BU
J114
6272 BK/VT
5382 BK/YE
6110 BK/GY
469 BK/L-GN
1272 BK/VT
1271 BK/L-BU
2752 BK/BN
Q6F Camshaft Position Actuator Solenoid Valve - Intake
2
Q6E Camshaft Position Actuator Solenoid Valve - Exhaust
2
X101 33
X101 33
X101 6
24
5382 BK/YE
6110 BK/GY
1272 BK/VT
1271 BK/L-BU
6753 BK/BN
6754 BK/VT
2129 BK/L-BU
MYB
N8D
X2 31
X1 25
X1 26
X2 21
X1 27
28
X2 28
37
36
44
Low Reference Bus
J
K20 Engine Control Module

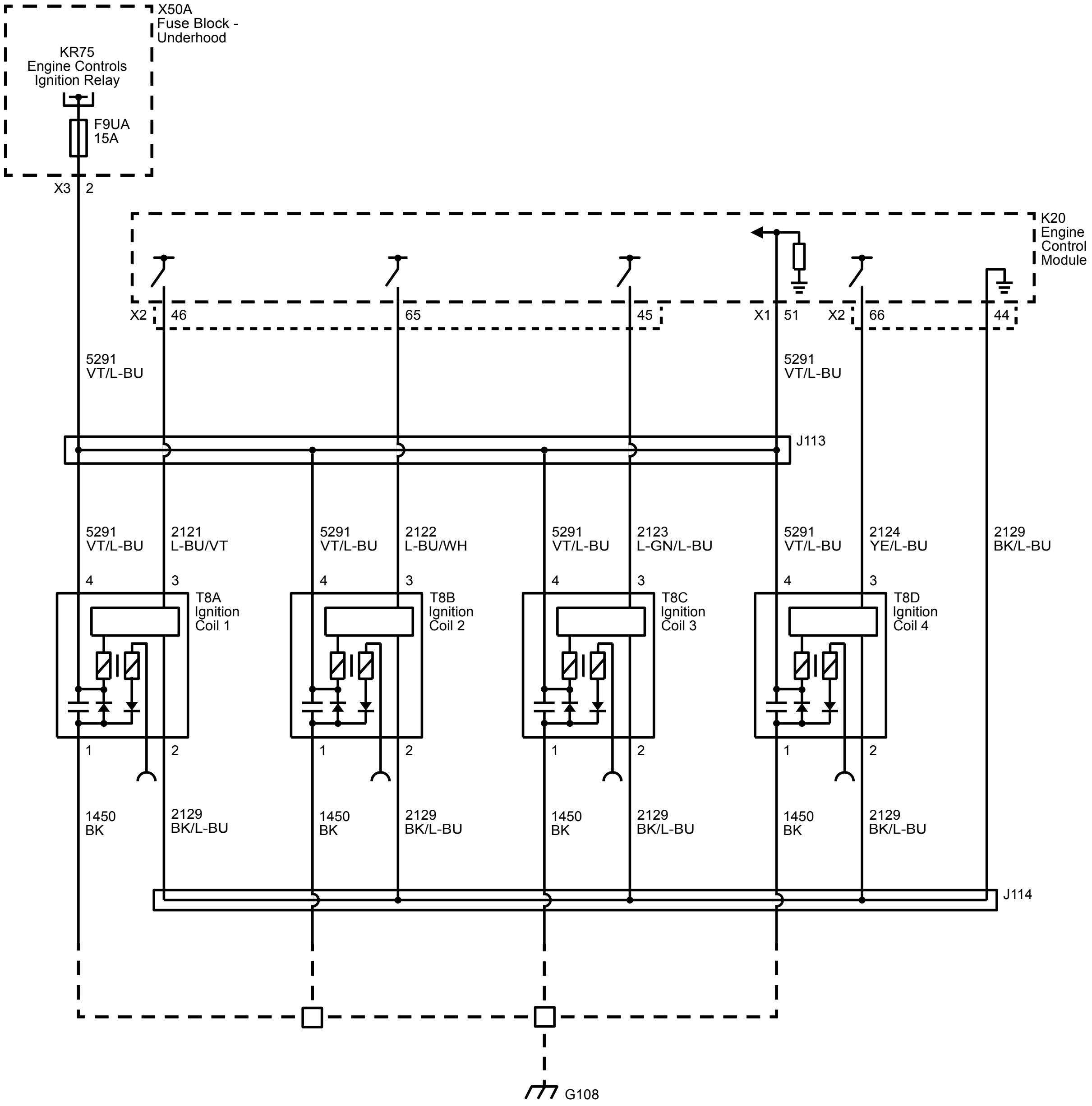

X50A
Fuse Block - Underhood
KR75
Engine Controls Ignition Relay
F11UA
10A
X3 7
K20
Engine Control Module
MAF
5V1
IAT 1
5V3
X1 34
X3 14
X1 48
X2 2
X1 46
X2 5
5294
VT/L-BU
J111
492
L-GN/WH
3201
WH/RD
6289
WH/L-BU
410
L-BU
3000
YE/BK
X101 41
X102 45
X104 2
2704
GY/RD
B75C
Multifunction Intake Air Sensor
B34
Engine Coolant Temperature Sensor
B203
Engine Coolant Radiator Temperature Sensor
B74
Manifold Absolute Pressure Sensor
P
U
1451
BK/WH
4008
BN/GY
3200
YE/WH
2761
BK/BN
6813
BK/L-BU
X101 40
432
L-GN/WH
469
BK/L-GN
J112
X1 60
X3 46
X2 43
X3 40
X2 21
RH%
IAT 2%/
IAT 2HZ
TIAP
G108


X50A
Fuse Block -
Underhood
KR75
Engine Controls
Ignition Relay
F47UA
10A
F11UA
10A
X3
6
7
5293
VT/L-BU
5294
VT/L-BU
J107
J111
5293
VT/L-BU
5294
VT/L-BU
2
2
5293
BK
5294
WH
B52A
Heated
Oxygen
Sensor 1
B52B
Heated
Oxygen
Sensor 2
3113
BK
3110
BU
3111
WH
3122
WH
3120
BK
3121
GY
1
4
3
1
4
3
3113
GY/WH
3110
VT/GY
3111
WH/BK
3122
GY/WH
3120
VT/L-BU
3121
WH/YE
X2
61
53
33
60
54
34
K20
Engine
Control
Module

Engine Data Sensors - Throttle Controls



K20
Engine
Control
Module
2
5V3
X1
11
12
45
K9
Body
Control
Module
F28UA
F24RA
5V
X2
13
7
X1
19
1274
BN/RD
1164
WH/RD
1161
YE/WH
5359
WH
5361
BK/YE
5360
BK/BN
X101
8
25
32
X200
33
34
35
1
2
3
B107
Accelerator
Pedal
Position
Sensor
B22
Brake
Pedal
Position
Sensor
Q38
Throttle
Body
A90
Logic
M
6
5
4
5
4
6
5
3
4
2
1
1162
L-GN/WH
1272
BK/VT
1271
BK/L-BU
5381
WH/RD
5380
WH/GN
5382
BK/YE
2701
BN/RD
3630
L-BU/WH
2752
BK/BN
582
BN/WH
581
YE
X101
23
6
24
35
34
33
9
MYB
MYB
MYB
X1
33
27
28
41
61
25
X2
12
13
28
72
52
5V4
1
5V2
5V4
1/2
K20
Engine
Control
Module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Fuse Block - Underhood
KR75
Engine Controls Ignition Relay
F9UA
15A
X3
2
K20
Engine Control Module
X2
46
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45
X1
51
X2
66
44
5291
VT/L-BU
5291
VT/L-BU
J113
5291
VT/L-BU
2121
L-BU/VT
5291
VT/L-BU
2122
L-BU/WH
5291
VT/L-BU
2123
L-GN/L-BU
5291
VT/L-BU
2124
YE/L-BU
2129
BK/L-BU
4
3
T8A
Ignition Coil 1
4
3
T8B
Ignition Coil 2
4
3
T8C
Ignition Coil 3
4
3
T8D
Ignition Coil 4
1
2
1
2
1
2
1
2
1450
BK
2129
BK/L-BU
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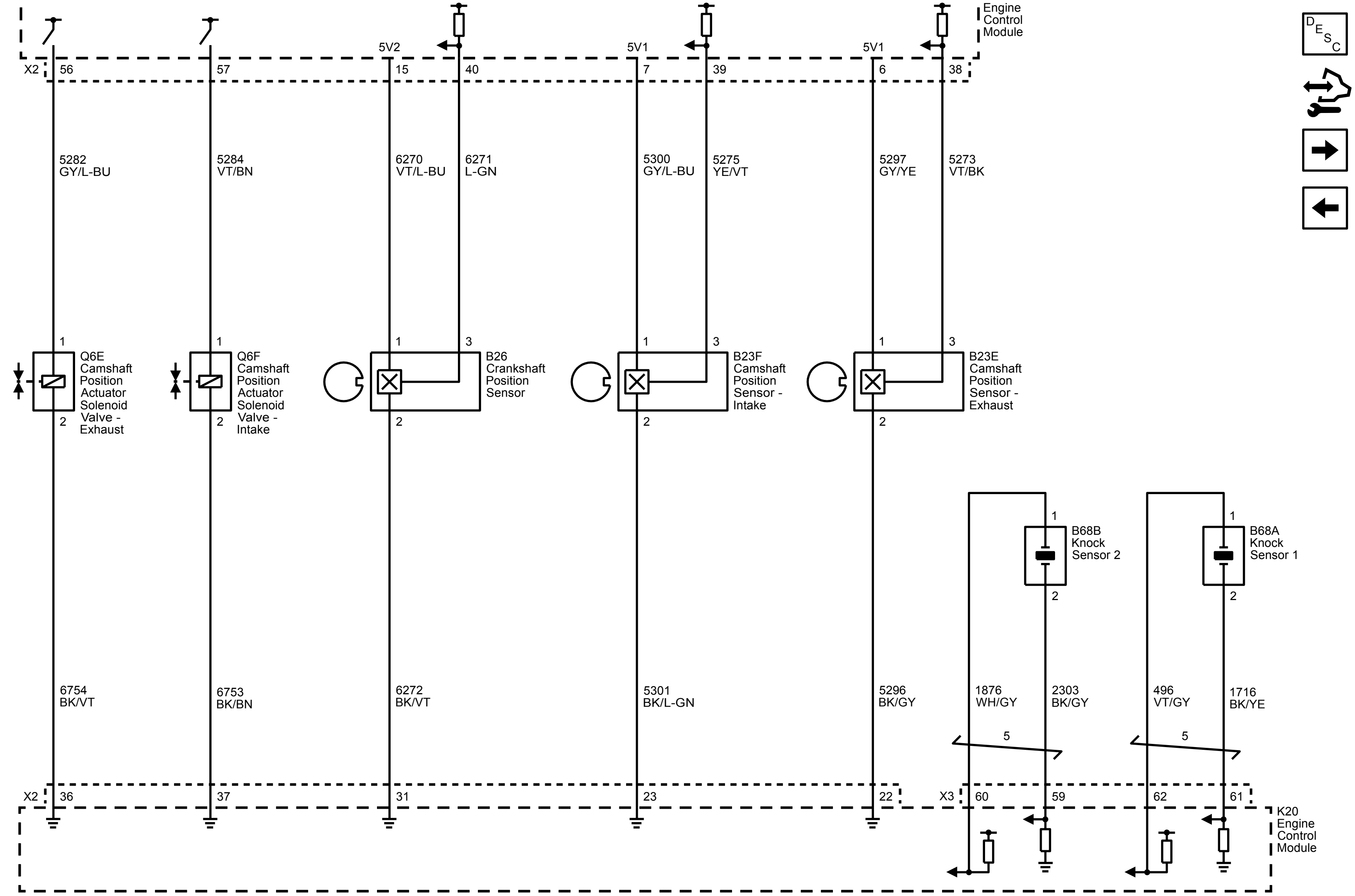
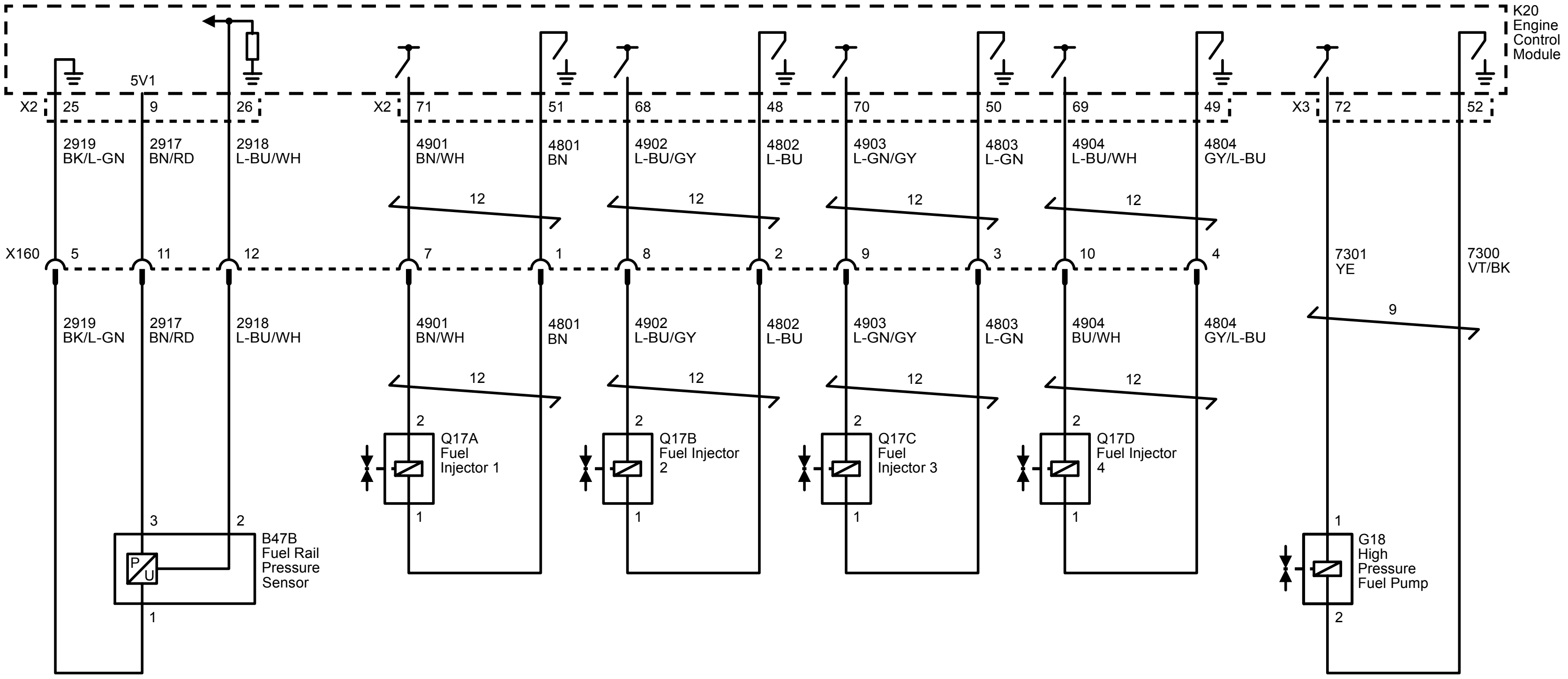
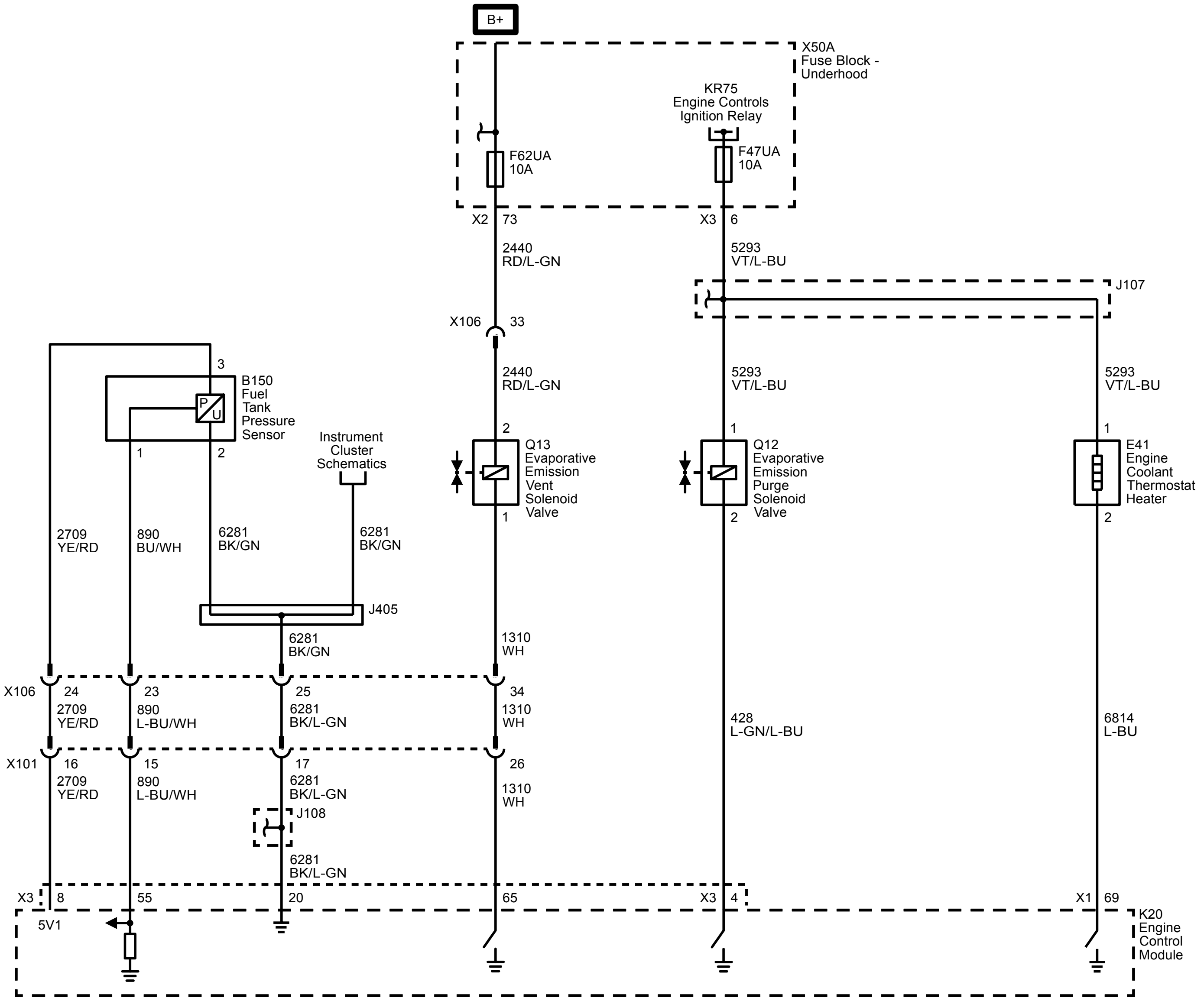
2129
BK/L-BU
J114
G108


K20 Engine Control Module
X2
56
57
5V2
15
40
5V1
7
39
5V1
6
38
5282 GY/L-BU
5284 VT/BN
6270 VT/L-BU
6271 L-GN
5300 GY/L-BU
5275 YE/VT
5297 GY/YE
5273 VT/BK
1
2
Q6E Camshaft Position Actuator Solenoid Valve - Exhaust
Q6F Camshaft Position Actuator Solenoid Valve - Intake
3
B26 Crankshaft Position Sensor
B23F Camshaft Position Sensor - Intake
B23E Camshaft Position Sensor - Exhaust
B68B Knock Sensor 2
B68A Knock Sensor 1
6754 BK/VT
6753 BK/BN
6272 BK/VT
5301 BK/L-GN
5296 BK/GY
1876 WH/GY
2303 BK/GY
496 VT/GY
1716 BK/YE
5
X2
36
37
31
23
22
X3
60
59
62
61
K20 Engine Control Module

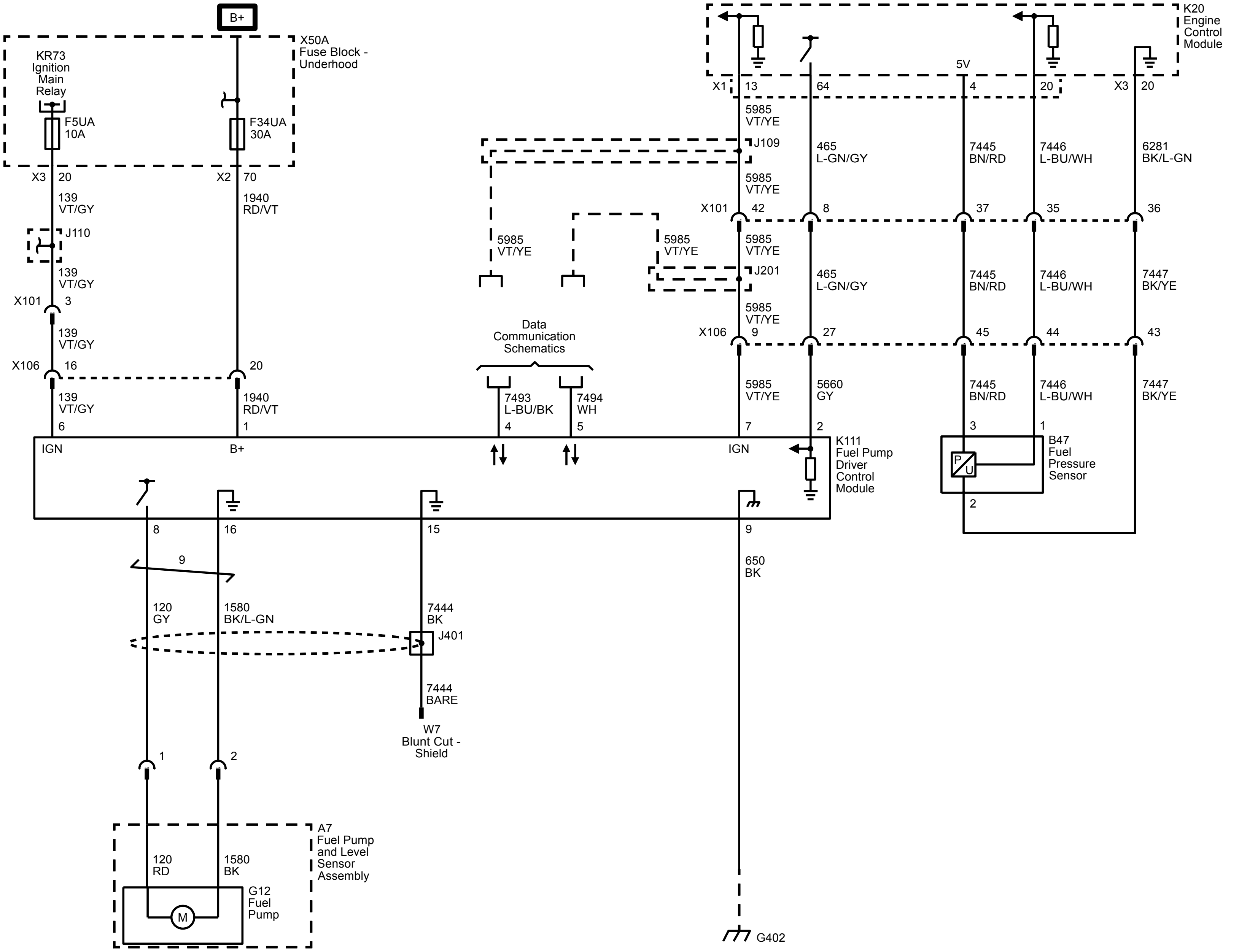
Fuel Controls - Fuel Injectors and High Pressure Control

LOC
DESC


K20 Engine Control Module
5V1
X2
25
9
26
X2
71
51
68
48
70
50
69
49
X3
72
52
2919 BK/L-GN
2917 BN/RD
2918 L-BU/WH
4901 BN/WH
4801 BN
4902 L-BU/GY
4802 L-BU
4903 L-GN/GY
4803 L-GN
4904 L-BU/WH
4804 GY/L-BU
12
12
12
12
X160
5
11
12
7
1
8
2
9
3
10
4
7301 YE
7300 VT/BK
9
2919 BK/L-GN
2917 BN/RD
2918 L-BU/WH
4901 BN/WH
4801 BN
4902 L-BU/GY
4802 L-BU
4903 L-GN/GY
4803 L-GN
4904 BU/WH
4804 GY/L-BU
12
12
12
12
2
Q17A Fuel Injector 1
1
2
Q17B Fuel Injector 2
1
2
Q17C Fuel Injector 3
1
2
Q17D Fuel Injector 4
1
3
2
P
U
B47B Fuel Rail Pressure Sensor
1
1
G18 High Pressure Fuel Pump
2


B+
X50A
Fuse Block -
Underhood
KR75
Engine Controls
Ignition Relay
F62UA
10A
F47UA
10A
X2
73
X3
6
2440
RD/L-GN
5293
VT/L-BU
J107
X106
33
2440
RD/L-GN
5293
VT/L-BU
5293
VT/L-BU
3
B150
Fuel
Tank
Pressure
Sensor
P
U
1
2
Instrument
Cluster
Schematics
2
Q13
Evaporative
Emission
Vent
Solenoid
Valve
1
1
Q12
Evaporative
Emission
Purge
Solenoid
Valve
2
1
E41
Engine
Coolant
Thermostat
Heater
2
2709
YE/RD
890
BU/WH
6281
BK/GN
6281
BK/GN
J405
6281
BK/GN
1310
WH
X106
24
2709
YE/RD
23
890
L-BU/WH
25
6281
BK/L-GN
34
1310
WH
428
L-GN/L-BU
6814
L-BU
X101
16
2709
YE/RD
15
890
L-BU/WH
17
6281
BK/L-GN
26
1310
WH
J108
6281
BK/L-GN
X3
8
55
20
65
X3
4
X1
69
5V1
K20
Engine
Control
Module

Fuel Controls - Evaporative Emission Controls


B+
X50A
Fuse Block -
Underhood
KR73
Ignition
Main
Relay
F5UA
10A
F34UA
30A
X3 20
X2 70
139
VT/GY
1940
RD/VT
J110
139
VT/GY
X101 3
139
VT/GY
X106 16
20
139
VT/GY
1940
RD/VT
6
1
K20
Engine
Control
Module
X1 13
64
5V
4
20
X3 20
5985
VT/YE
J109
465
L-GN/GY
7445
BN/RD
7446
L-BU/WH
6281
BK/L-GN
5985
VT/YE
X101 42
8
37
35
36
5985
VT/YE
5985
VT/YE
5985
VT/YE
J201
465
L-GN/GY
7445
BN/RD
7446
L-BU/WH
7447
BK/YE
5985
VT/YE
X106 9
27
45
44
43
Data
Communication
Schematics
7493
L-BU/BK
7494
WH
4
5
5985
VT/YE
5660
GY
7445
BN/RD
7446
L-BU/WH
7447
BK/YE
7
2
3
1
IGN
B+
IGN
K111
Fuel Pump
Driver
Control
Module
B47
Fuel
Pressure
Sensor
P
U
2
8
16
15
9
9
120
GY
1580
BK/L-GN
7444
BK
J401
7444
BARE
W7
Blunt Cut -
Shield
650
BK
1
2
A7
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and Level
Sensor
Assembly
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RD
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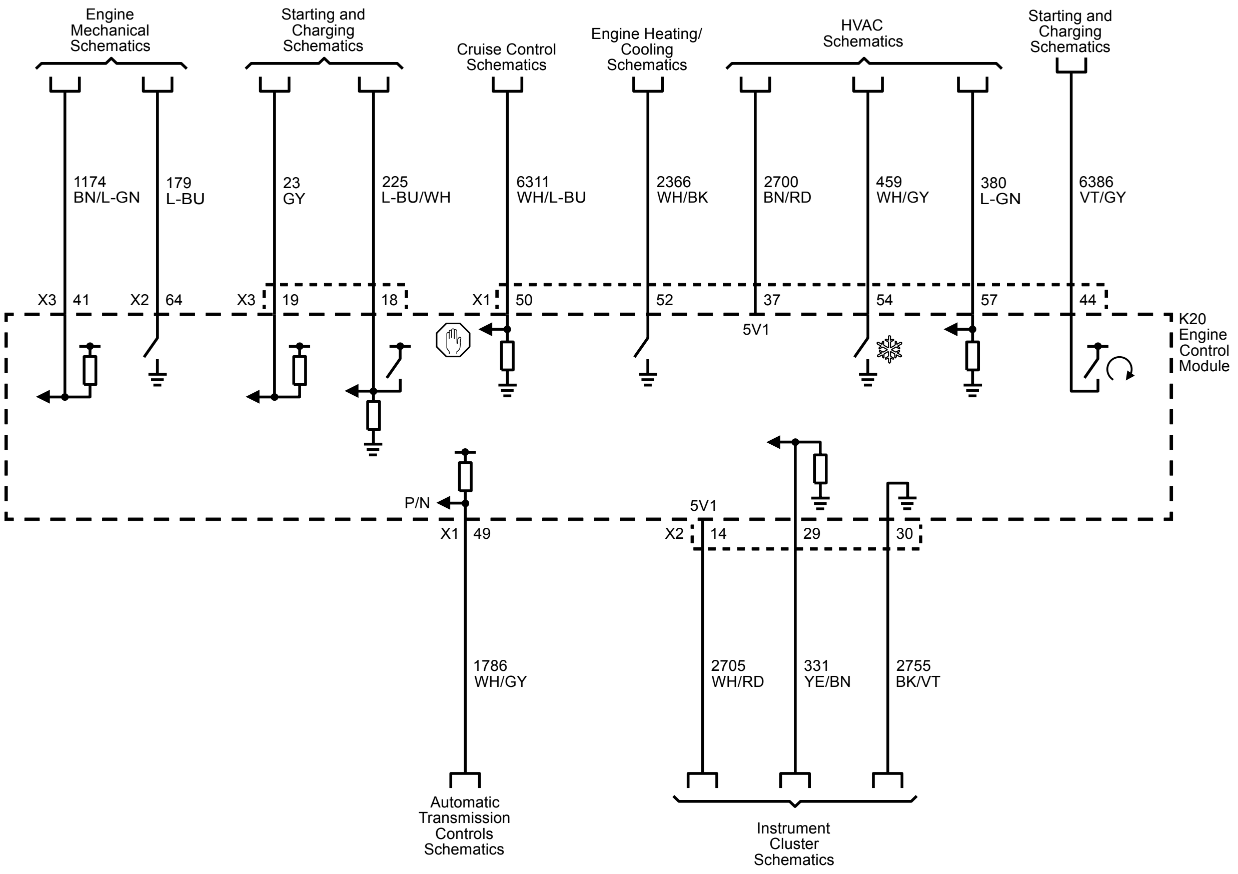
BK
G12
Fuel
Pump
M
G402

Controlled/Monitored Subsystem References


Engine Mechanical Schematics
Starting and Charging Schematics
Cruise Control Schematics
Engine Heating/ Cooling Schematics
HVAC Schematics
Starting and Charging Schematics
1174 BN/L-GN
179 L-BU
23 GY
225 L-BU/WH
6311 WH/L-BU
2366 WH/BK
2700 BN/RD
459 WH/GY
380 L-GN
6386 VT/GY
X3 41
X2 64
X3 19
18
X1 50
52
37
54
57
44
5V1
K20 Engine Control Module
P/N
5V1
X1 49
X2 14
29
30
1786 WH/GY
2705 WH/RD
331 YE/BN
2755 BK/VT
Automatic Transmission Controls Schematics
Instrument Cluster Schematics

Diagnostic Information and Procedures

DTC P0089, P00C6, P228C, or P228D

Diagnostic Instructions

- Perform the CELL Link Error - Link target cell (cell ID 72794) is invalid for this publication. prior to using this diagnostic procedure.
- Review CELL Link Error - Link target cell (cell ID 161235) is invalid for this publication. for an overview of the diagnostic approach.
- CELL Link Error - Link target cell (cell ID 161236) is invalid for this publication. provides an overview of each diagnostic category.

DTC Descriptors

DTC P0089: Fuel Pressure Regulator Performance

DTC P00C6: Fuel Rail Pressure Low During Engine Cranking

DTC P228C: Fuel Pressure Regulator Control Performance - Low Pressure

DTC P228D: Fuel Pressure Regulator Control Performance - High Pressure

Circuit/System Description

The high fuel pressure necessary for direct injection is supplied by the high pressure fuel pump. The high pressure fuel pump is mounted on the rear of the engine and is driven by a three-lobe cam on the intake camshaft. This high pressure fuel pump also regulates the fuel pressure using an actuator in the form of an internal solenoid-controlled valve. In order to keep the engine running efficiently under all operating conditions, the engine control module (ECM) requests pressure ranging from 2 to 15 MPa (290 to 2,176 psi), depending on engine speed and load. Output drivers in the ECM provide the pump control circuit with a 12 V pulse-width modulated (PWM) signal, which regulates fuel pressure by closing and opening the control valve at specific times during pump strokes. This effectively regulates the portion of each pump stroke that is delivered to the fuel rail. When the control solenoid is NOT powered, the pump operates at maximum flow rate. In the event of pump control failure, the high pressure system is protected by a relief valve in the pump that prevents the pressure from exceeding 17.5 MPa (2,538 psi).

The fuel rail pressure sensor provides the feedback necessary to the ECM to control the high pressure fuel pump and the fuel injectors. This sensor is diagnosed separately from the fuel pressure control system.

The ECM monitors the fuel rail pressure sensor and the high pressure fuel pump actuator to determine if the commanded and actual pressures are within a predetermined range during engine cranking and at all times while the engine is running. The ECM also monitors the fuel pump actuator to make sure it is operating within expected limits.

Conditions for Running the DTC

P0089, P228C, or P228D

- DTC P0016, P0017, P0090, P0091, P0092, P00C8, P00C9, P00CA, P0111, P0112, P0113, P0114, P0116, P0117, P0118, P0119, P0128, P0191, P0192, P0193, P0335, P0336, P0340, P0341, P0365, P0366, P0628, or P1682 is not set.
- The ignition voltage is greater than 8 V.
- The engine is running.
- The low side fuel pressure is greater than 250 kPa (36 psi).
- The barometric (BARO) pressure is greater than 70 kPa.
- The intake air temperature (IAT) is warmer than −20°C (−4°F).
- The DTCs run continuously when the above conditions are met for 60 s.

P00C6

- DTC P0016, P0017, P0090, P0091, P0092, P00C8, P00C9, P00CA, P0111, P0112, P0113, P0114, P0116, P0117, P0118, P0119, P0128, P0191, P0192, P0193, P0335, P0336, P0340, P0341, P0365, P0366, P0628, or P1682 is not set.
- The ignition voltage is greater than 8 V.
- The engine coolant temperature is less than 65°C (149°F).
- The low side fuel pressure is greater than 300 kPa (44 psi).
- The diagnostic runs once for each engine start.

Conditions for Setting the DTC

P0089

The high pressure fuel pump has exceeded it's control limits. This condition exists when the high pressure fuel pump actuator command is 0° or greater than 240°. The condition exists for greater than 10 s.

P00C6

The ECM detects that the fuel rail pressure is not rising greater than 3 MPa (435 psi) or has fallen below 2 MPa (290 psi) during engine cranking, depending on initial pressure when cranking begins.

P228C

The actual fuel rail pressure is 3 MPa (435 psi) less than the desired fuel rail pressure. The condition exists for greater than 10 s.

P228D

The actual fuel rail pressure is 3 MPa (435 psi) greater than the desired fuel rail pressure. The condition exists for greater than 10 s.

Action Taken When the DTC Sets

- DTCs P0089 and P00C6 are Type B DTCs.
- DTCs P228C and P228D are Type A DTCs.
- A message center or an indicator displays Reduced Engine Power.
- Scan tool control of the high pressure fuel pump is inhibited.

Conditions for Clearing the DTC

- DTCs P0089 and P00C6 are Type B DTCs.
- DTCs P228C and P228D are Type A DTCs.

Diagnostic Aids

- Any problem with the camshaft may set fuel pressure DTCs due to the location and design of the high pressure fuel pump. If camshaft position control DTCs are current or in history, a cam control issue may be the root cause.
- A faulty valve, plunger, or solenoid in the high pressure fuel pump may set a DTC. High pressure fuel pump damage will most likely be undetectable upon visual inspection.
- A restricted fuel feed pipe between the fuel feed pipe fuel pressure sensor and the high pressure fuel pump may set a DTC.
- A leaking or restricted fuel injector may set a DTC.
- A leak in the high pressure fuel system may set a DTC.
- Vapor lock may set DTC P0089

Reference Information

Schematic Reference

Engine Controls Schematics

Connector End View Reference

Component Connector End Views

Description and Operation

CELL Link Error - Link target cell (cell ID 221921) is invalid for this publication.

Electrical Information Reference

- CELL Link Error - Link target cell (cell ID 62194) is invalid for this publication.
- CELL Link Error - Link target cell (cell ID 61973) is invalid for this publication.
- CELL Link Error - Link target cell (cell ID 62112) is invalid for this publication.
- CELL Link Error - Link target cell (cell ID 61965) is invalid for this publication.

DTC Type Reference

CELL Link Error - Link target cell (cell ID 161179) is invalid for this publication.

Scan Tool Reference

CELL Link Error - Link target cell (cell ID 72864) is invalid for this publication. for scan tool information

Circuit/System Verification

1. Attempt to start and idle the engine.
2. Observe the DTC information with a scan tool. DTCs P0089, P00C6, P228C, and P228D should not set.

   ⇒ **If any of the DTCs are set**

   Refer to Circuit/System Testing.

   ⇓ **If none of the DTCs are set**
3. Engine idling.
4. Verify the scan tool Fuel Rail Pressure Sensor parameter is approximately 1.9–5.0 MPa (276–725 PSI).

   ⇒ **If not between 1.9–5.0 MPa (276–725 PSI)**

   Refer to Circuit/System Testing.

   ⇓ **If between 1.9–5.0 MPa (276–725 PSI)**
5. Verify the scan tool Fuel Rail Pressure Sensor parameter increases or decreases while commanding an increase and decrease in Fuel Rail Pressure with a scan tool.

   ⇒ **Does not change**

   Refer to Circuit/System Testing.

   ⇓ **Changes**

Warning: **Road test a vehicle under safe conditions and while obeying all traffic laws. Do not attempt any maneuvers that could jeopardize vehicle control. Failure to adhere to these precautions could lead to serious personal injury and vehicle damage.**

6. Road test the vehicle and perform a wide open acceleration from a stop until the transmission shifts into second gear. On manual transmission applications, shift to second gear or stop the test near 2,500 RPM. Repeat the test at least three times.
7. Verify DTCs P0089, P00C6, P228C, and P228D do not set.

   ⇒ **If any of the DTCs set**

   Refer to Circuit/System Testing.

   ⇓ **If none of the DTCs set**
8. Operate the vehicle within the Conditions for Running the DTC. You may also operate the vehicle within the conditions that you observed from the Freeze Frame/Failure Records data.
9. Verify the DTC does not set.

   ⇒ **If the DTC sets**

   Refer to Circuit/System Testing.

   ⇓ **If the DTC does not set**
10. All OK.

Circuit/System Testing

Note: Circuit/System Verification must be performed first or misdiagnosis may result.

1. Remove the G18 High Pressure Fuel Pump.
2. Verify the lobes on the camshaft do not have unusual wear or are worn.

   ⇒ **If the lobes have unusual wear or are worn**

   Replace the Camshaft.

   ⇓ **If the lobes are OK**
3. Test or replace the G18 High Pressure Fuel Pump.

Component Testing

1. Ignition OFF, disconnect the harness connector at the G18 High Pressure Fuel Pump.

   Note: The DMM and test leads must be calibrated to 0 Ω in order to prevent misdiagnosis.
2. Test for 0.3–0.7 Ω at 20°C (68°F) between the high control circuit terminal 1 and the low control circuit terminal 2.

   ⇒ **If not between 0.3–0.7 Ω**

   Replace the G18 High Pressure Fuel Pump.

   ⇓ **If between 0.3–0.7 Ω**
3. Test for infinite resistance between each terminal and the G18 High Pressure Fuel Pump housing.

   ⇒ **If less than infinite resistance**

   Replace the G18 High Pressure Fuel Pump.

   ⇓ **If infinite resistance**
4. All OK

Repair Instructions

Perform the CELL Link Error - Link target cell (cell ID 143214) is invalid for this publication. after completing the diagnostic procedure.

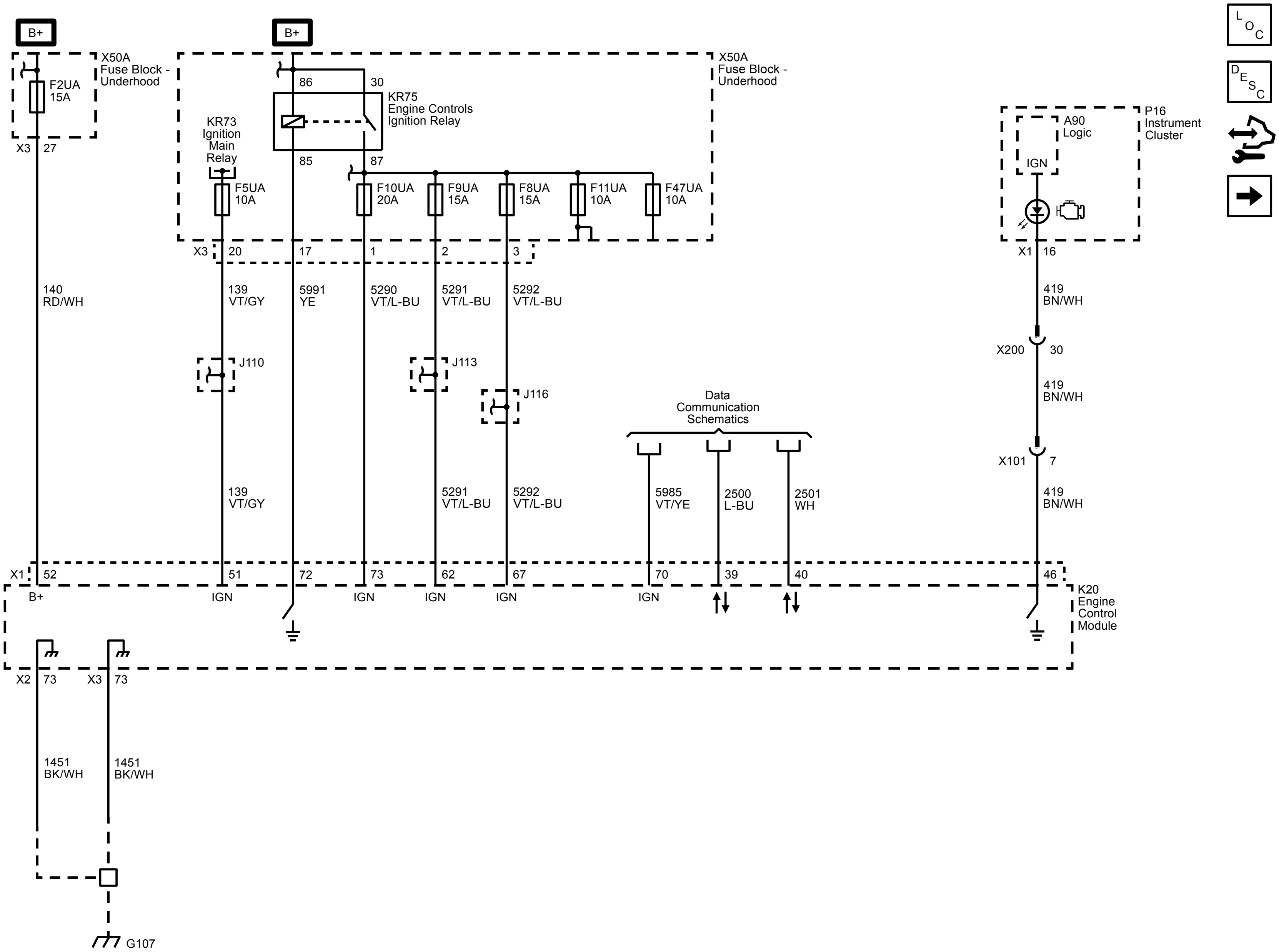
- CELL Link Error - Link target cell (cell ID 229022) is invalid for this publication.
- CELL Link Error - Link target cell (cell ID 221754) is invalid for this publication.
- CELL Link Error - Link target cell (cell ID 221751) is invalid for this publication.
- Perform the Fuel Rail Pressure Relief Valve Reset procedure, if supported on the scan tool.

Engine Controls and Fuel - 3.6L (LFX)

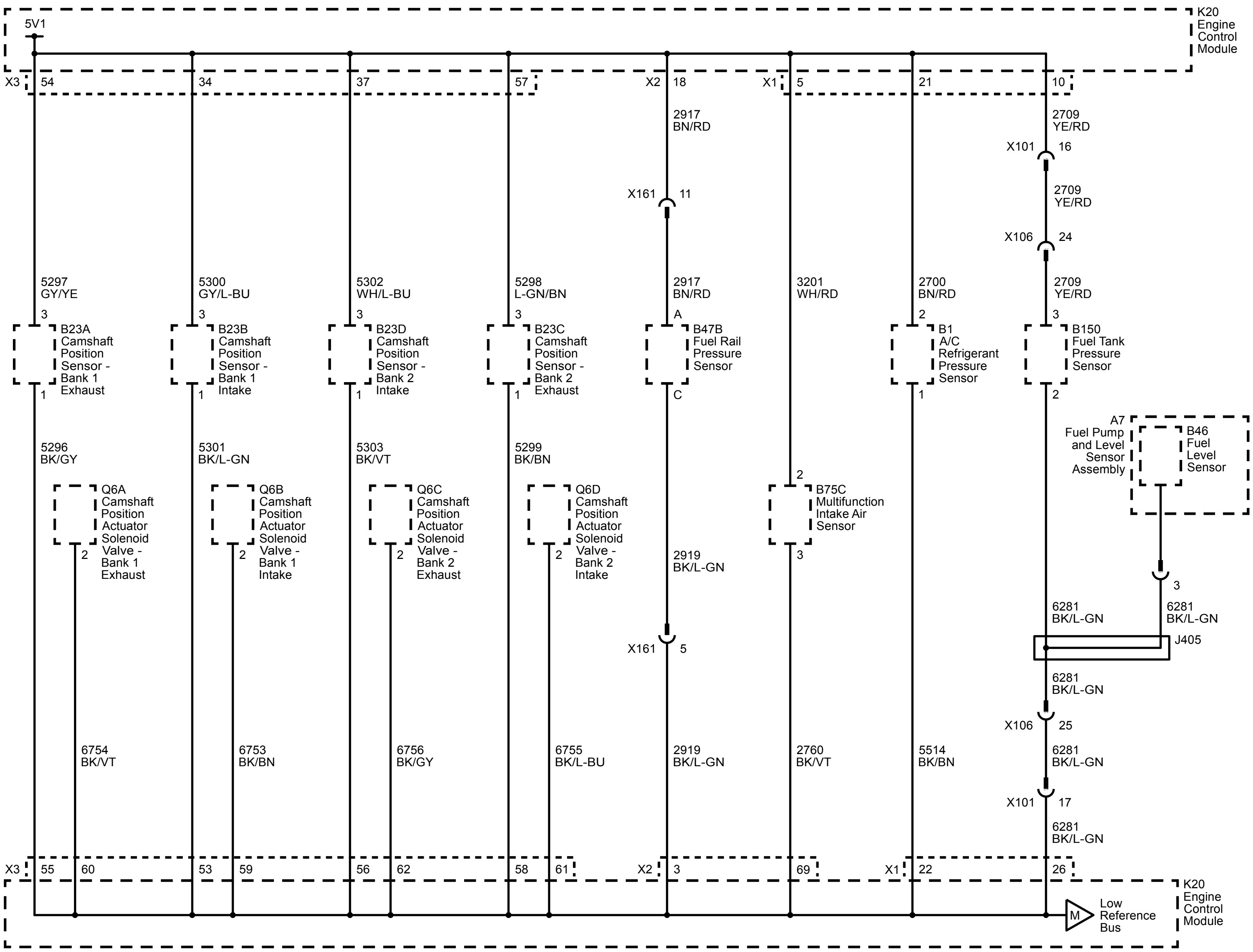
Schematic and Routing Diagrams

Engine Controls Schematics

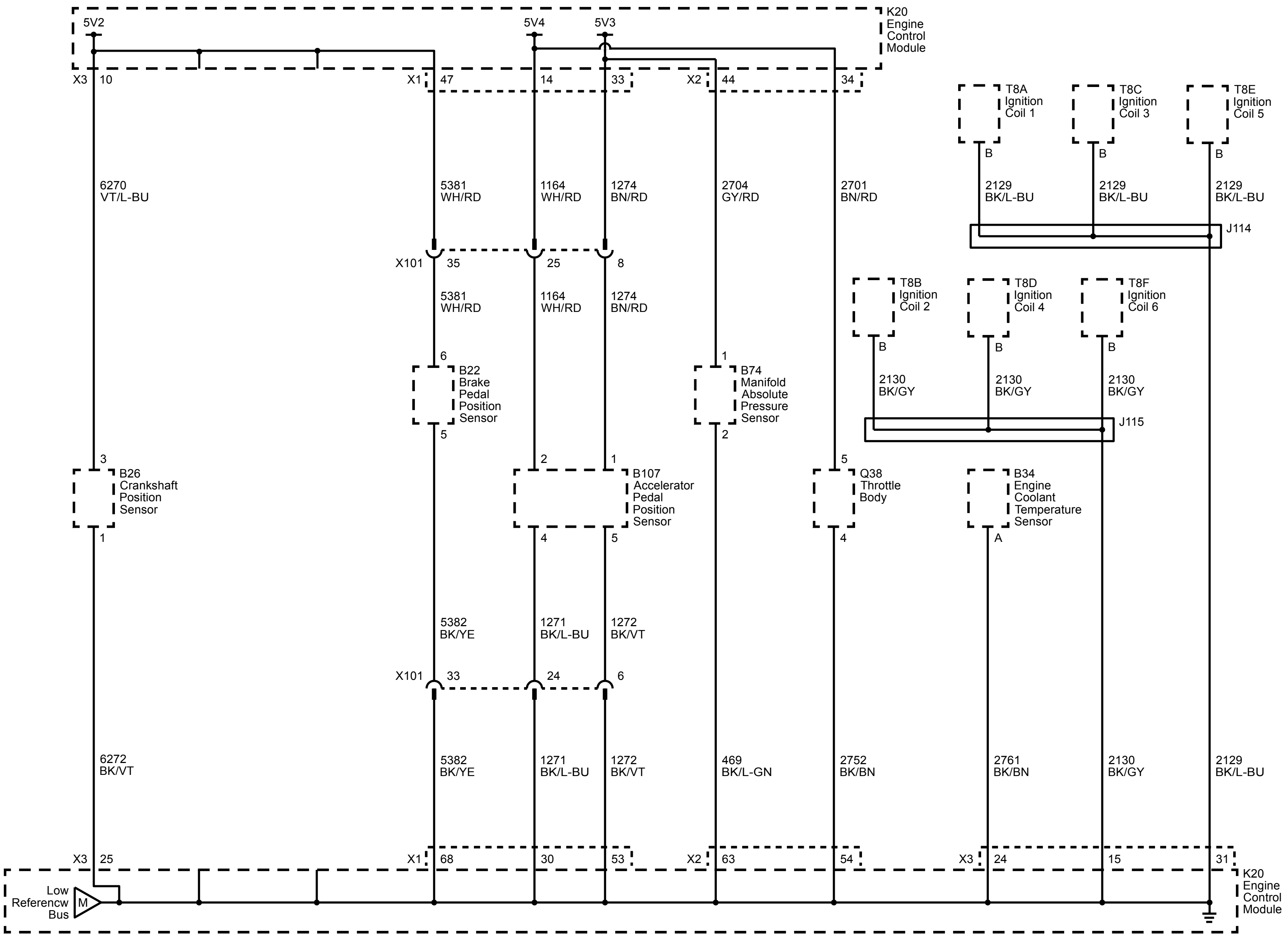
Power, Ground, Serial Data, and MIL


B+
X50A
Fuse Block -
Underhood
F2UA
15A
X3 27
B+
86
30
KR75
Engine Controls
Ignition Relay
KR73
Ignition
Main
Relay
85
87
F5UA
10A
F10UA
20A
F9UA
15A
F8UA
15A
F11UA
10A
F47UA
10A
X3 20
17
1
2
3
140
RD/WH
139
VT/GY
5991
YE
5290
VT/L-BU
5291
VT/L-BU
5292
VT/L-BU
J110
J113
J116
139
VT/GY
5291
VT/L-BU
5292
VT/L-BU
Data
Communication
Schematics
5985
VT/YE
2500
L-BU
2501
WH
P16
Instrument
Cluster
A90
Logic
IGN
X1 16
419
BN/WH
X200 30
419
BN/WH
X101 7
419
BN/WH
X1 52
51
72
73
62
67
70
39
40
46
B+
IGN
IGN
IGN
IGN
IGN
K20
Engine
Control
Module
X2 73
X3 73
1451
BK/WH
1451
BK/WH
G107

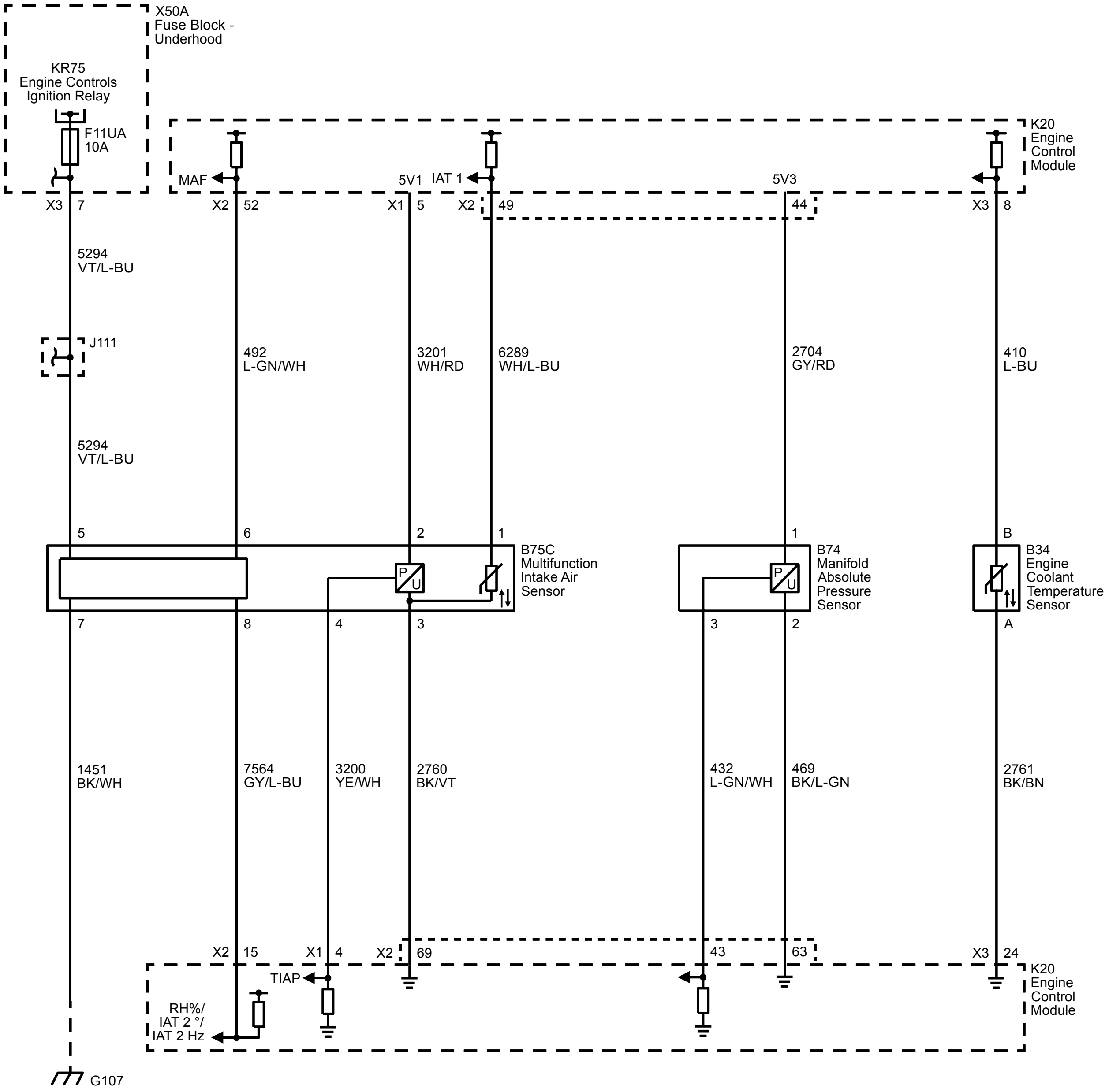
5V1 and Low Reference Bus (1 of 2)


K20 Engine Control Module
5V1
X3
54
34
37
57
X2
18
X1
5
21
10
2917 BN/RD
2709 YE/RD
X101 16
2709 YE/RD
X161 11
X106 24
5297 GY/YE
5300 GY/L-BU
5302 WH/L-BU
5298 L-GN/BN
2917 BN/RD
3201 WH/RD
2700 BN/RD
2709 YE/RD
3
B23A Camshaft Position Sensor - Bank 1 Exhaust
1
3
B23B Camshaft Position Sensor - Bank 1 Intake
1
3
B23D Camshaft Position Sensor - Bank 2 Intake
1
3
B23C Camshaft Position Sensor - Bank 2 Exhaust
1
A
B47B Fuel Rail Pressure Sensor
C
2
B1 A/C Refrigerant Pressure Sensor
1
3
B150 Fuel Tank Pressure Sensor
2
A7 Fuel Pump and Level Sensor Assembly
B46 Fuel Level Sensor
5296 BK/GY
5301 BK/L-GN
5303 BK/VT
5299 BK/BN
Q6A Camshaft Position Actuator Solenoid Valve - Bank 1 Exhaust
2
Q6B Camshaft Position Actuator Solenoid Valve - Bank 1 Intake
2
Q6C Camshaft Position Actuator Solenoid Valve - Bank 2 Exhaust
2
Q6D Camshaft Position Actuator Solenoid Valve - Bank 2 Intake
2
2
B75C Multifunction Intake Air Sensor
3
2919 BK/L-GN
3
6281 BK/L-GN
6281 BK/L-GN
J405
X161 5
6281 BK/L-GN
X106 25
6754 BK/VT
6753 BK/BN
6756 BK/GY
6755 BK/L-BU
2919 BK/L-GN
2760 BK/VT
5514 BK/BN
6281 BK/L-GN
X101 17
6281 BK/L-GN
X3
55
60
53
59
56
62
58
61
X2
3
69
X1
22
26
M
Low Reference Bus
K20 Engine Control Module

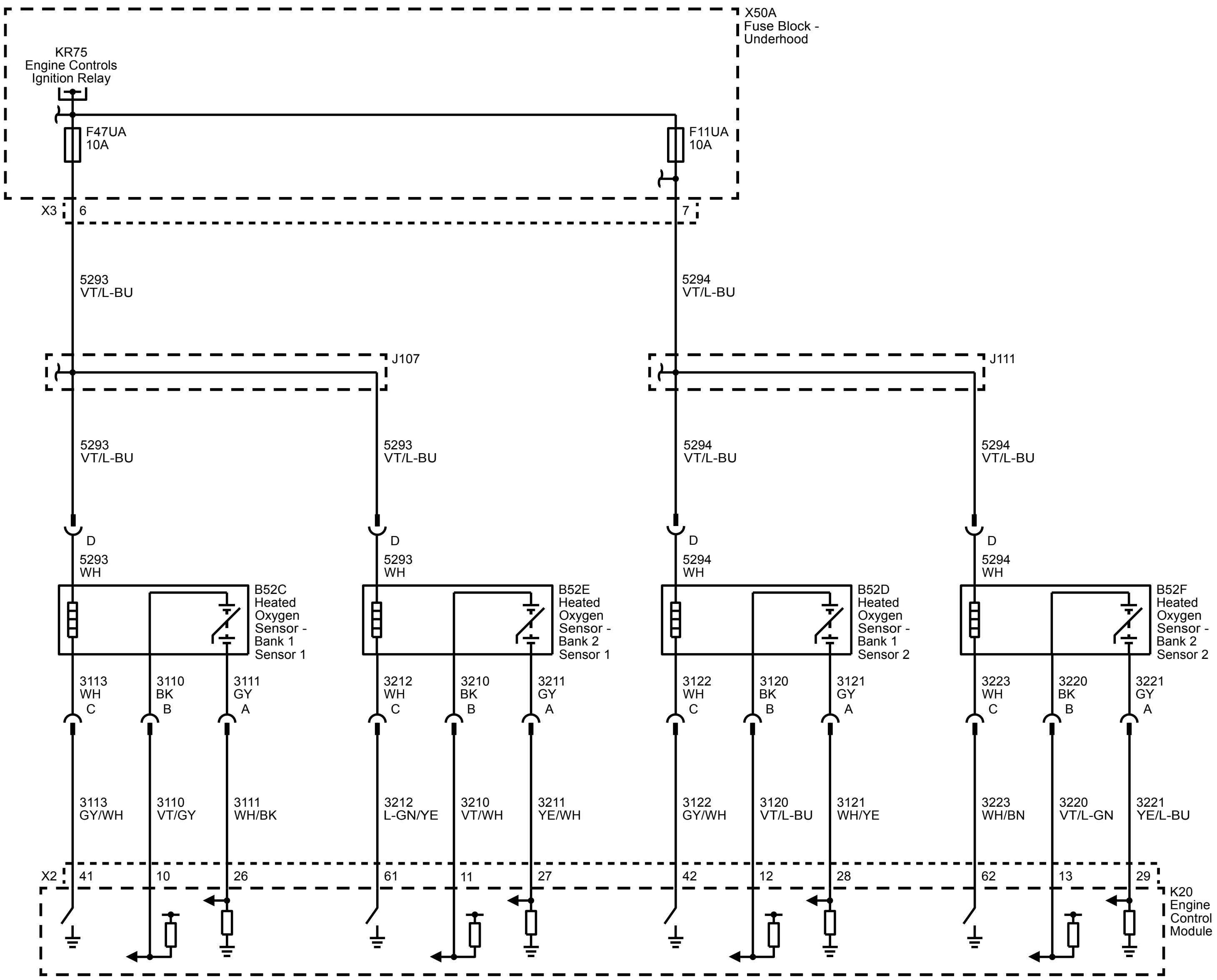
5V2, 5V3, and 5V4, and Low Reference Bus (2 of 2)

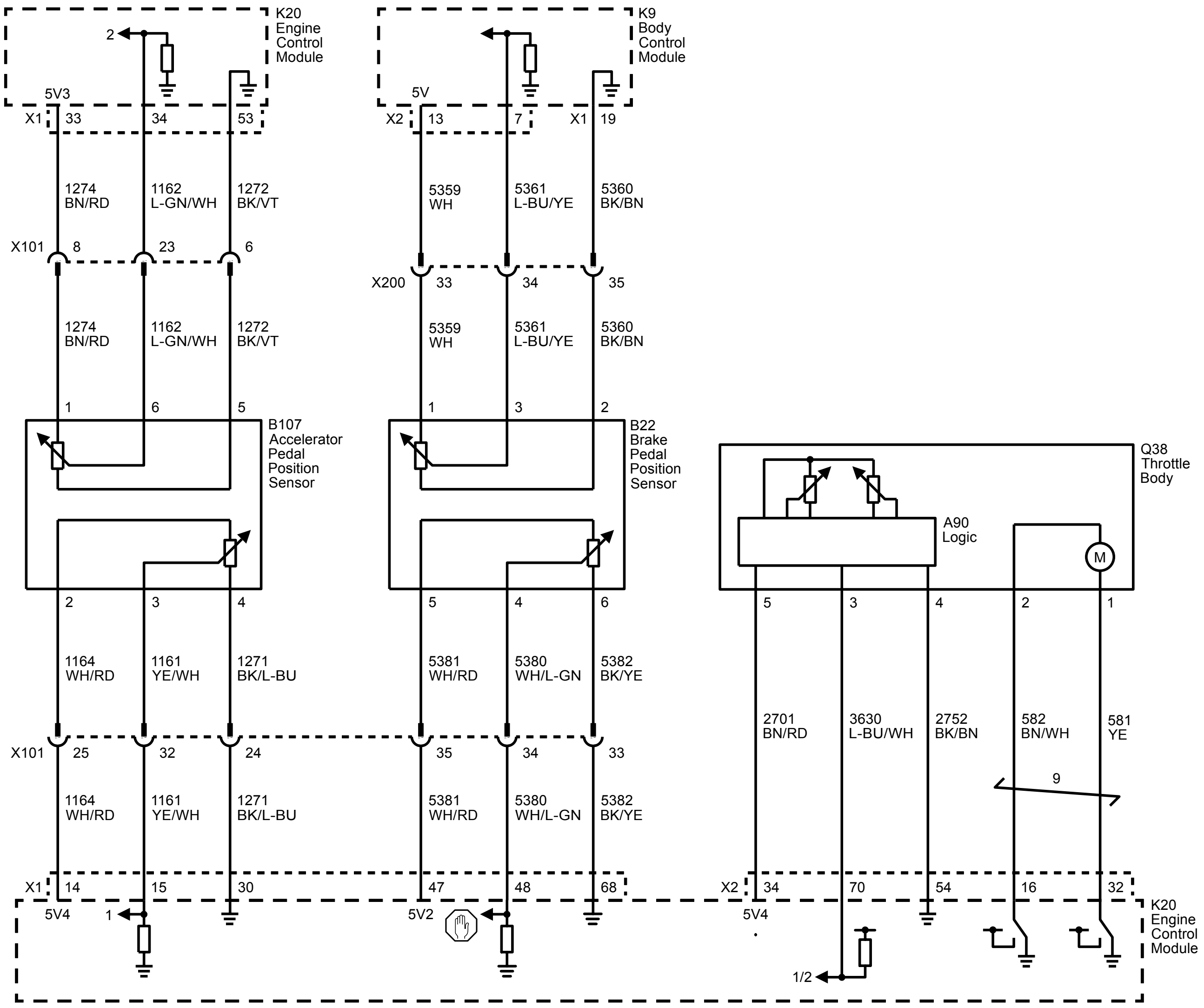

K20 Engine Control Module
5V2
5V4
5V3
X3 10
X1 47
14
33
X2 44
34
6270 VT/L-BU
5381 WH/RD
1164 WH/RD
1274 BN/RD
2704 GY/RD
2701 BN/RD
X101 35
25
8
6
B22 Brake Pedal Position Sensor
5
1
B74 Manifold Absolute Pressure Sensor
2
3
B26 Crankshaft Position Sensor
1
2
1
B107 Accelerator Pedal Position Sensor
4
5
Q38 Throttle Body
T8A Ignition Coil 1
T8C Ignition Coil 3
T8E Ignition Coil 5
B
2129 BK/L-BU
J114
T8B Ignition Coil 2
T8D Ignition Coil 4
T8F Ignition Coil 6
2130 BK/GY
J115
B34 Engine Coolant Temperature Sensor
A
5382 BK/YE
1271 BK/L-BU
1272 BK/VT
X101 33
24
6
6272 BK/VT
469 BK/L-GN
2752 BK/BN
2761 BK/BN
2130 BK/GY
2129 BK/L-BU
X3 25
X1 68
30
53
X2 63
54
X3 24
15
31
Low Referencw Bus
M

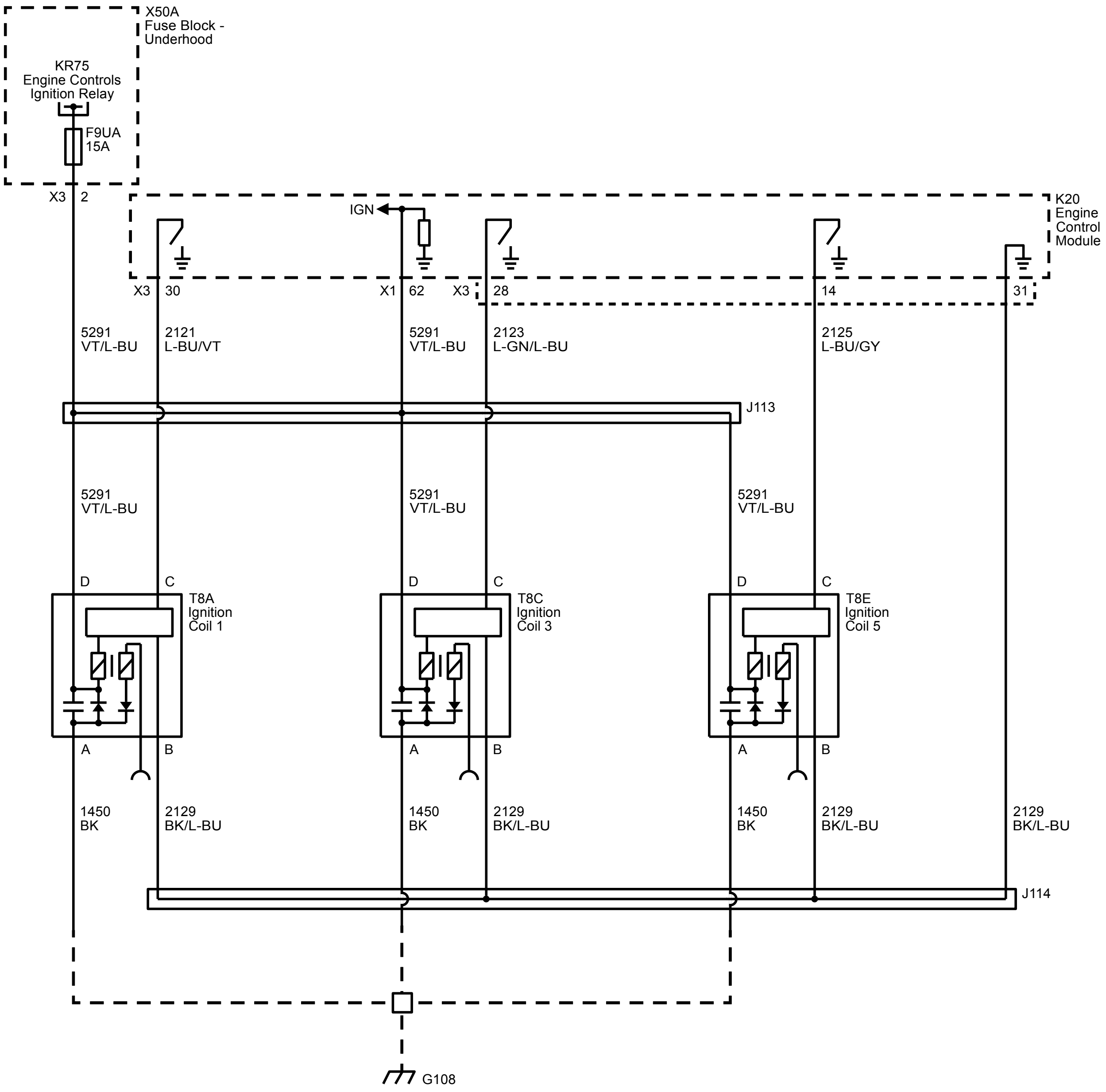
Engine Data Sensors - Pressure and Temperature


X50A
Fuse Block -
Underhood
KR75
Engine Controls
Ignition Relay
F11UA
10A
X3 7
5294
VT/L-BU
J111
5294
VT/L-BU
MAF
X2 52
492
L-GN/WH
5V1
X1 5
3201
WH/RD
IAT 1
X2 49
6289
WH/L-BU
5V3
44
2704
GY/RD
X3 8
410
L-BU
K20
Engine
Control
Module
5
6
2
1
B75C
Multifunction
Intake Air
Sensor
P
U
7
8
4
3
1
B74
Manifold
Absolute
Pressure
Sensor
3
2
B
B34
Engine
Coolant
Temperature
Sensor
A
1451
BK/WH
7564
GY/L-BU
3200
YE/WH
2760
BK/VT
432
L-GN/WH
469
BK/L-GN
2761
BK/BN
X2 15
X1 4
X2 69
43
63
X3 24
TIAP
RH%/
IAT 2 °/
IAT 2 Hz
K20
Engine
Control
Module
G107

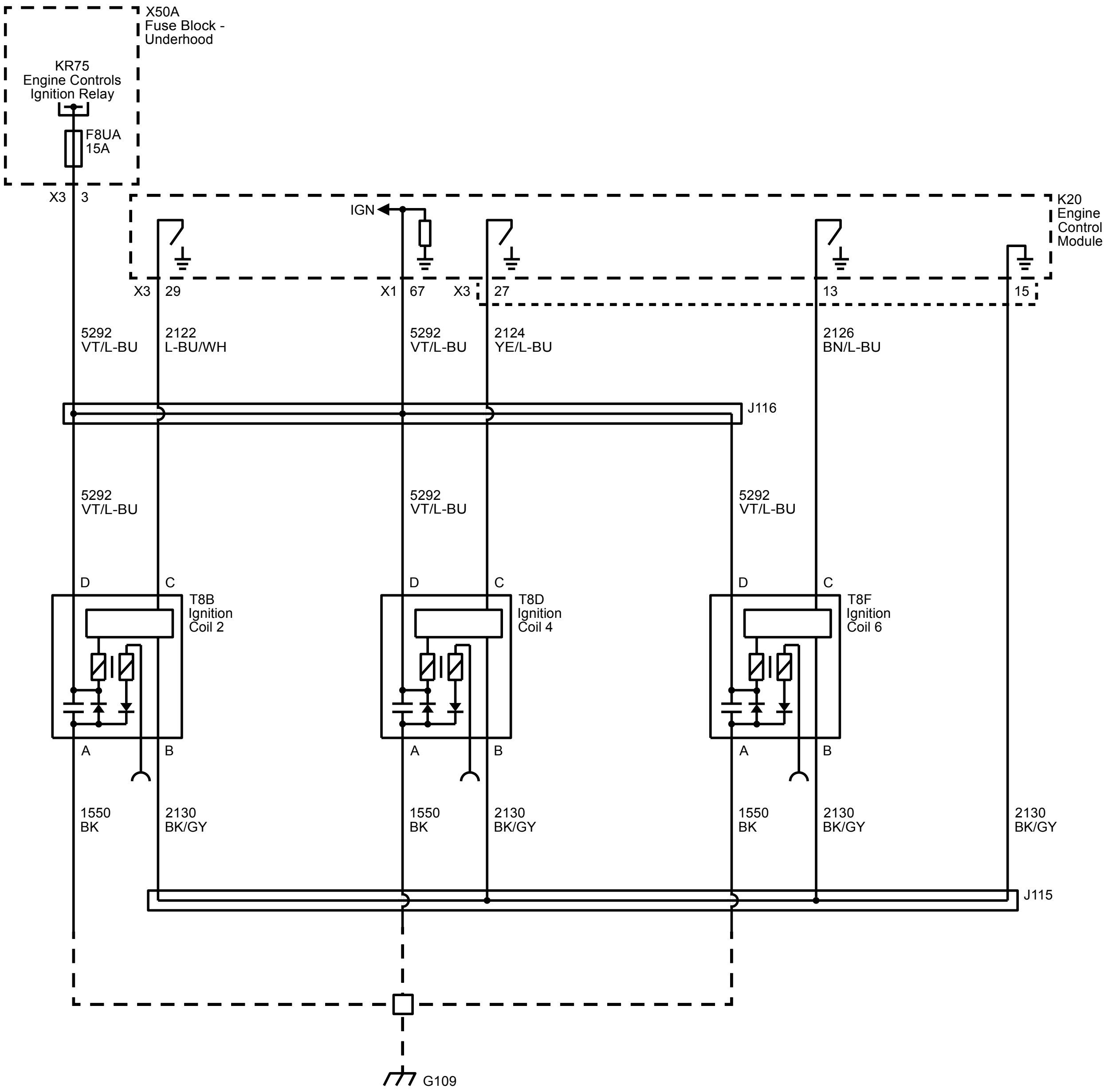
Engine Data Sensors - Oxygen Sensors


X50A Fuse Block - Underhood
KR75 Engine Controls Ignition Relay
F47UA 10A
F11UA 10A
X3
6
7
5293 VT/L-BU
5294 VT/L-BU
J107
J111
5293 VT/L-BU
5293 VT/L-BU
5294 VT/L-BU
5294 VT/L-BU
D
5293 WH
5293 WH
5294 WH
5294 WH
B52C Heated Oxygen Sensor - Bank 1 Sensor 1
B52E Heated Oxygen Sensor - Bank 2 Sensor 1
B52D Heated Oxygen Sensor - Bank 1 Sensor 2
B52F Heated Oxygen Sensor - Bank 2 Sensor 2
3113 WH C
3110 BK B
3111 GY A
3212 WH C
3210 BK B
3211 GY A
3122 WH C
3120 BK B
3121 GY A
3223 WH C
3220 BK B
3221 GY A
3113 GY/WH
3110 VT/GY
3111 WH/BK
3212 L-GN/YE
3210 VT/WH
3211 YE/WH
3122 GY/WH
3120 VT/L-BU
3121 WH/YE
3223 WH/BN
3220 VT/L-GN
3221 YE/L-BU
X2
41
10
26
61
11
27
42
12
28
62
13
29
K20 Engine Control Module

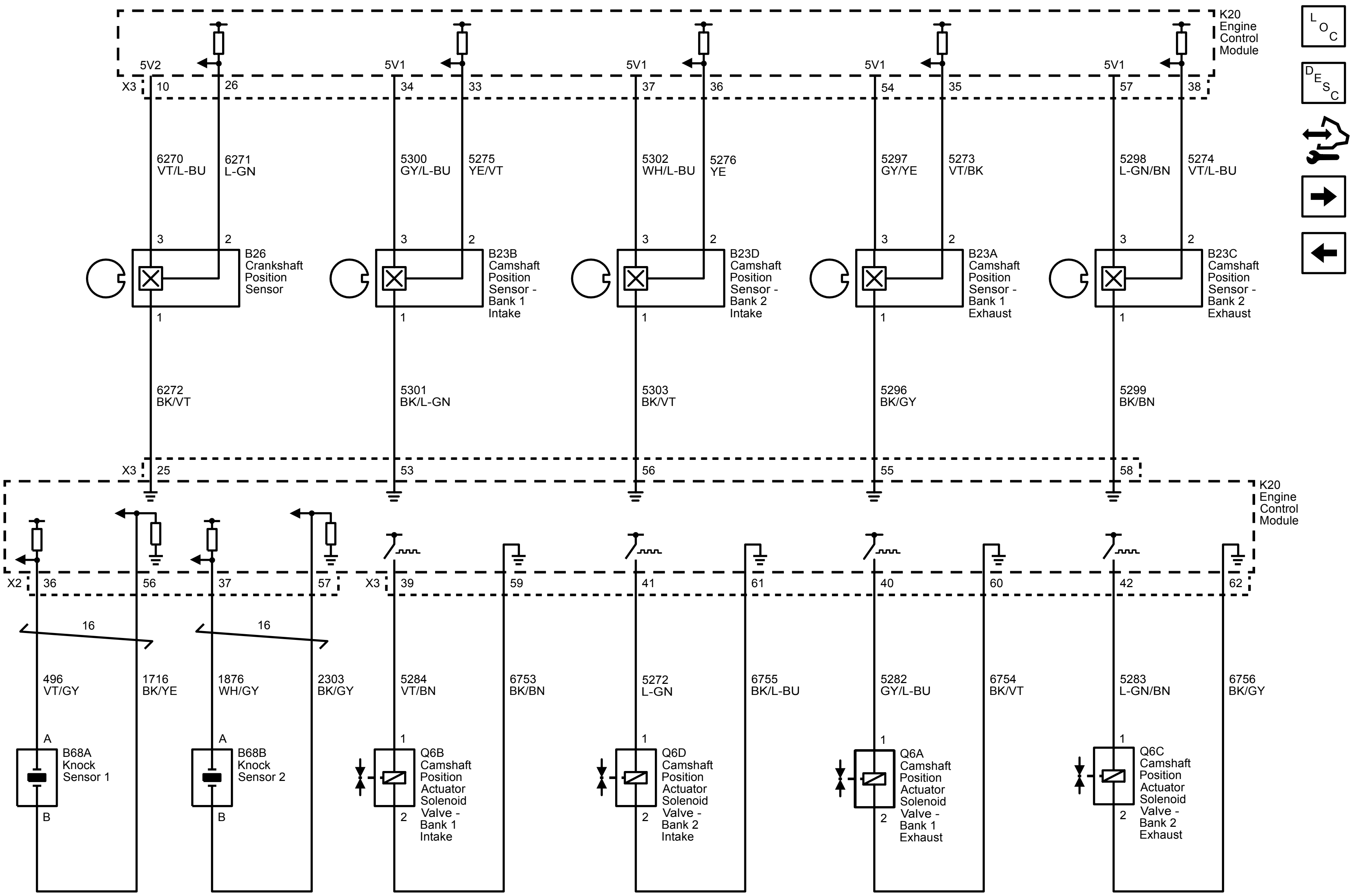

K20
Engine
Control
Module
2
5V3
X1
33
34
53
1274
BN/RD
1162
L-GN/WH
1272
BK/VT
X101
8
23
6
1274
BN/RD
1162
L-GN/WH
1272
BK/VT
1
6
5
B107
Accelerator
Pedal
Position
Sensor
2
3
4
1164
WH/RD
1161
YE/WH
1271
BK/L-BU
X101
25
32
24
1164
WH/RD
1161
YE/WH
1271
BK/L-BU
X1
14
15
30
5V4
1
K9
Body
Control
Module
5V
X2
13
7
X1
19
5359
WH
5361
L-BU/YE
5360
BK/BN
X200
33
34
35
5359
WH
5361
L-BU/YE
5360
BK/BN
1
3
2
B22
Brake
Pedal
Position
Sensor
5
4
6
5381
WH/RD
5380
WH/L-GN
5382
BK/YE
35
34
33
5381
WH/RD
5380
WH/L-GN
5382
BK/YE
47
48
68
5V2
Q38
Throttle
Body
A90
Logic
M
5
3
4
2
1
2701
BN/RD
3630
L-BU/WH
2752
BK/BN
582
BN/WH
581
YE
9
X2
34
70
54
16
32
5V4
1/2
K20
Engine
Control
Module

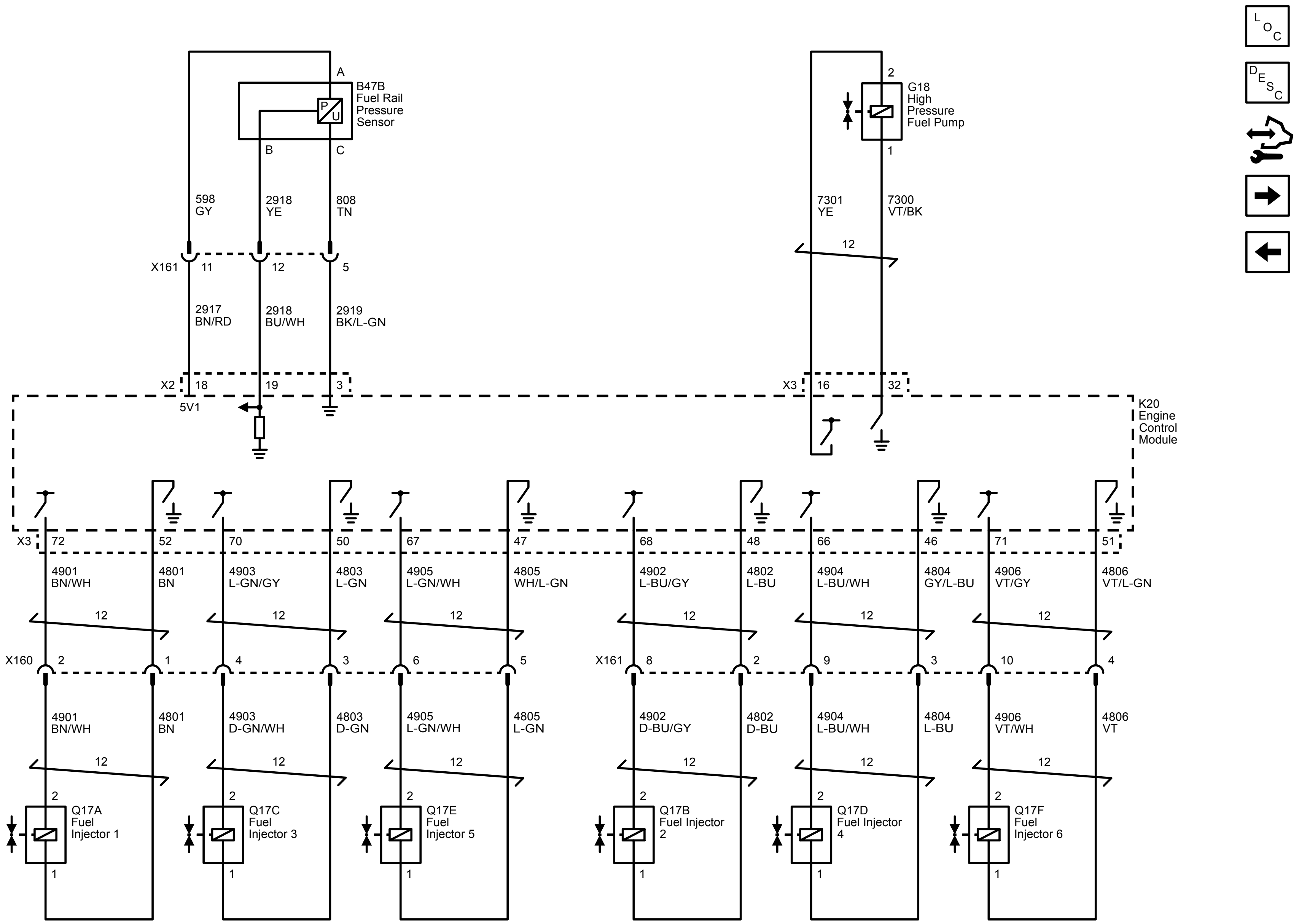

X50A
Fuse Block -
Underhood
KR75
Engine Controls
Ignition Relay
F9UA
15A
X3 2
K20
Engine
Control
Module
IGN
X3 30
X1 62
X3 28
14
31
5291
VT/L-BU
2121
L-BU/VT
5291
VT/L-BU
2123
L-GN/L-BU
2125
L-BU/GY
J113
5291
VT/L-BU
5291
VT/L-BU
5291
VT/L-BU
D
C
T8A
Ignition
Coil 1
D
C
T8C
Ignition
Coil 3
D
C
T8E
Ignition
Coil 5
A
B
A
B
A
B
1450
BK
2129
BK/L-BU
1450
BK
2129
BK/L-BU
1450
BK
2129
BK/L-BU
2129
BK/L-BU
J114
G108

Ignition Controls - Ignition Coils 2, 4, and 6

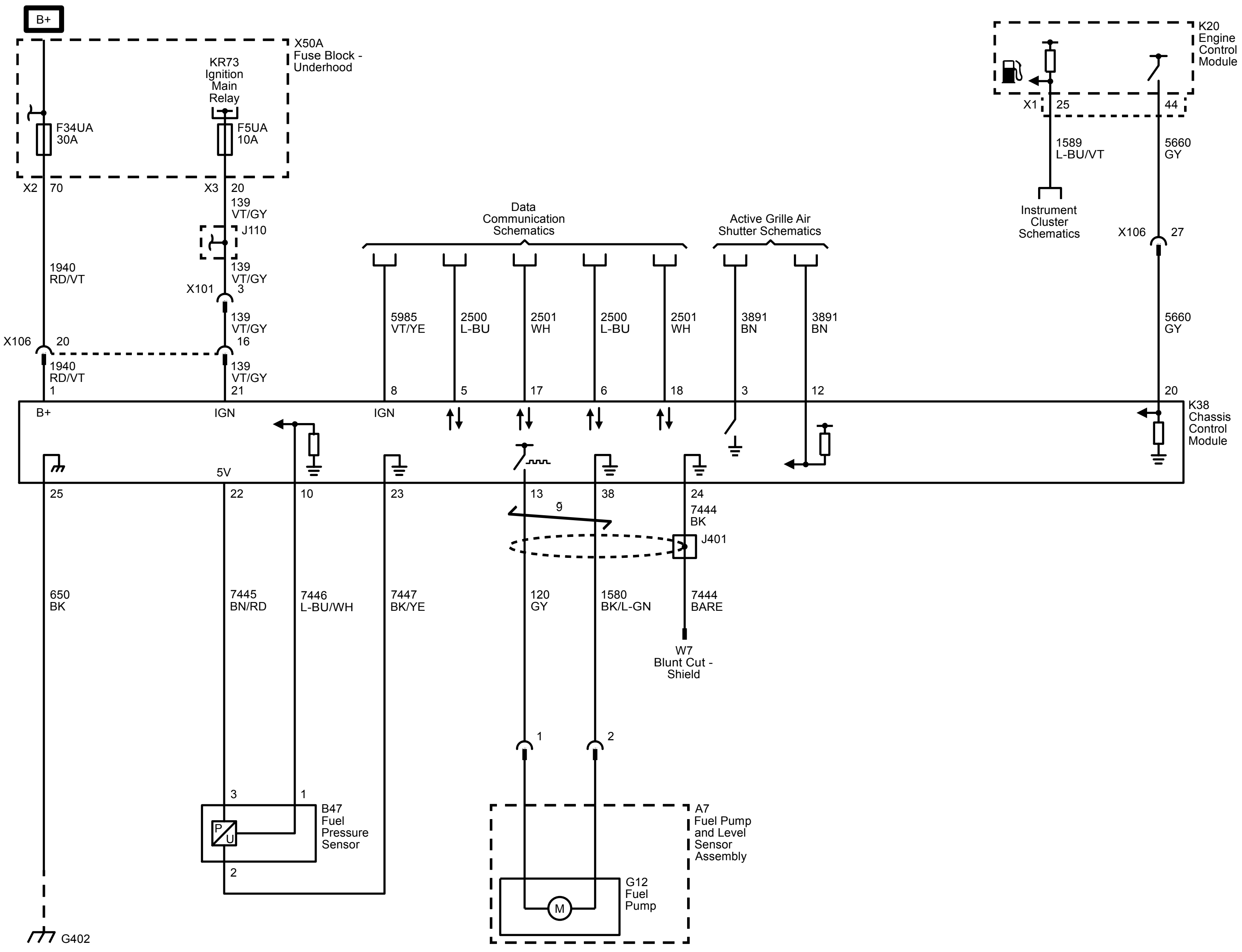

X50A
Fuse Block - Underhood
KR75
Engine Controls Ignition Relay
F8UA
15A
X3
3
K20
Engine Control Module
IGN
X3
29
X1
67
X3
27
13
15
5292
VT/L-BU
2122
L-BU/WH
5292
VT/L-BU
2124
YE/L-BU
2126
BN/L-BU
J116
5292
VT/L-BU
5292
VT/L-BU
5292
VT/L-BU
D
C
T8B
Ignition Coil 2
D
C
T8D
Ignition Coil 4
D
C
T8F
Ignition Coil 6
A
B
A
B
A
B
1550
BK
2130
BK/GY
1550
BK
2130
BK/GY
1550
BK
2130
BK/GY
2130
BK/GY
J115
G109

Ignition Controls - Camshaft, Crankshaft and Knock Sensors, Camshaft Actuators

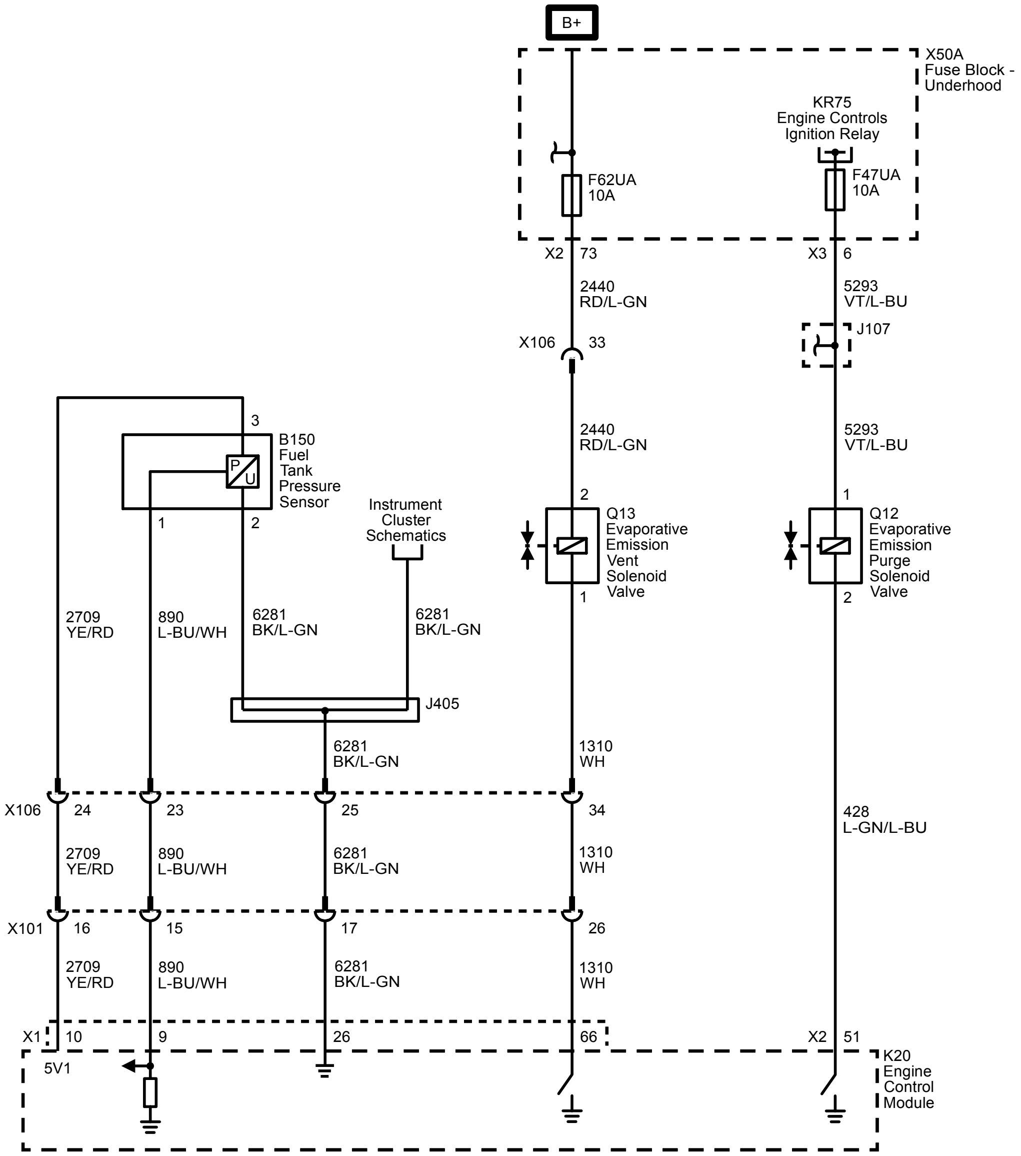

K20 Engine Control Module
L O C
D E S C
5V2
5V1
5V1
5V1
5V1
X3
10
26
34
33
37
36
54
35
57
38
6270 VT/L-BU
6271 L-GN
5300 GY/L-BU
5275 YE/VT
5302 WH/L-BU
5276 YE
5297 GY/YE
5273 VT/BK
5298 L-GN/BN
5274 VT/L-BU
3
2
1
B26 Crankshaft Position Sensor
B23B Camshaft Position Sensor - Bank 1 Intake
B23D Camshaft Position Sensor - Bank 2 Intake
B23A Camshaft Position Sensor - Bank 1 Exhaust
B23C Camshaft Position Sensor - Bank 2 Exhaust
6272 BK/VT
5301 BK/L-GN
5303 BK/VT
5296 BK/GY
5299 BK/BN
X3
25
53
56
55
58
K20 Engine Control Module
X2
36
56
37
57
X3
39
59
41
61
40
60
42
62
16
16
496 VT/GY
1716 BK/YE
1876 WH/GY
2303 BK/GY
5284 VT/BN
6753 BK/BN
5272 L-GN
6755 BK/L-BU
5282 GY/L-BU
6754 BK/VT
5283 L-GN/BN
6756 BK/GY
A
B
B68A Knock Sensor 1
B68B Knock Sensor 2
1
2
Q6B Camshaft Position Actuator Solenoid Valve - Bank 1 Intake
Q6D Camshaft Position Actuator Solenoid Valve - Bank 2 Intake
Q6A Camshaft Position Actuator Solenoid Valve - Bank 1 Exhaust
Q6C Camshaft Position Actuator Solenoid Valve - Bank 2 Exhaust


B47B Fuel Rail Pressure Sensor
A
B
C
P
U
598 GY
2918 YE
808 TN
X161
11
12
5
2917 BN/RD
2918 BU/WH
2919 BK/L-GN
X2
18
19
3
5V1
G18 High Pressure Fuel Pump
2
1
7301 YE
7300 VT/BK
12
X3
16
32
K20 Engine Control Module
X3
72
52
70
50
67
47
68
48
66
46
71
51
4901 BN/WH
4801 BN
4903 L-GN/GY
4803 L-GN
4905 L-GN/WH
4805 WH/L-GN
4902 L-BU/GY
4802 L-BU
4904 L-BU/WH
4804 GY/L-BU
4906 VT/GY
4806 VT/L-GN
X160
2
1
4
3
6
5
X161
8
2
9
3
10
4
4901 BN/WH
4801 BN
4903 D-GN/WH
4803 D-GN
4905 L-GN/WH
4805 L-GN
4902 D-BU/GY
4802 D-BU
4904 L-BU/WH
4804 L-BU
4906 VT/WH
4806 VT
Q17A Fuel Injector 1
Q17C Fuel Injector 3
Q17E Fuel Injector 5
Q17B Fuel Injector 2
Q17D Fuel Injector 4
Q17F Fuel Injector 6
L O C
D E S C

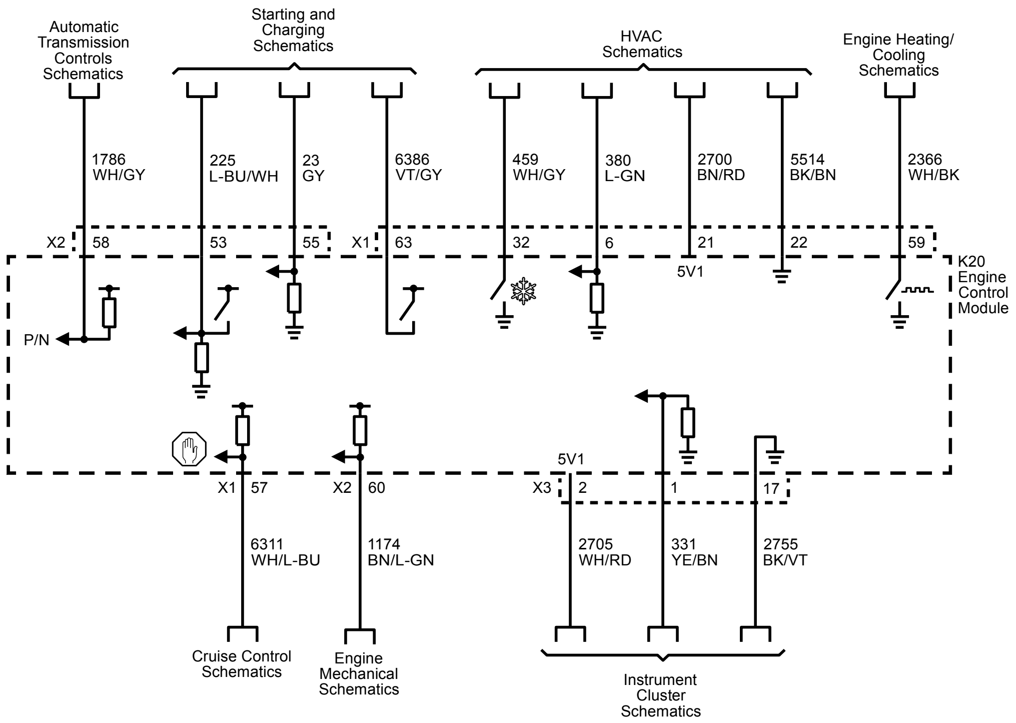
Fuel Controls - Fuel Pump Controls


B+
X50A
Fuse Block -
Underhood
KR73
Ignition
Main
Relay
F34UA
30A
F5UA
10A
X2
70
X3
20
139
VT/GY
J110
139
VT/GY
X101
3
1940
RD/VT
139
VT/GY
16
X106
20
1940
RD/VT
1
139
VT/GY
21
Data
Communication
Schematics
Active Grille Air
Shutter Schematics
5985
VT/YE
2500
L-BU
2501
WH
2500
L-BU
2501
WH
3891
BN
3891
BN
8
5
17
6
18
3
12
K20
Engine
Control
Module
X1
25
44
1589
L-BU/VT
Instrument
Cluster
Schematics
5660
GY
X106
27
5660
GY
20
K38
Chassis
Control
Module
B+
IGN
IGN
5V
25
22
10
23
13
38
24
9
7444
BK
J401
650
BK
7445
BN/RD
7446
L-BU/WH
7447
BK/YE
120
GY
1580
BK/L-GN
7444
BARE
W7
Blunt Cut -
Shield
1
2
3
1
B47
Fuel
Pressure
Sensor
P
U
2
A7
Fuel Pump
and Level
Sensor
Assembly
G12
Fuel
Pump
M
G402

Fuel Controls - Evaporative Emission Controls


B+
X50A
Fuse Block -
Underhood
KR75
Engine Controls
Ignition Relay
F62UA
10A
F47UA
10A
X2 73
X3 6
2440
RD/L-GN
5293
VT/L-BU
X106 33
J107
2440
RD/L-GN
5293
VT/L-BU
3
B150
Fuel
Tank
Pressure
Sensor
P
U
1
2
Instrument
Cluster
Schematics
2
Q13
Evaporative
Emission
Vent
Solenoid
Valve
1
1
Q12
Evaporative
Emission
Purge
Solenoid
Valve
2
2709
YE/RD
890
L-BU/WH
6281
BK/L-GN
6281
BK/L-GN
J405
6281
BK/L-GN
1310
WH
428
L-GN/L-BU
X106 24
23
25
34
2709
YE/RD
890
L-BU/WH
6281
BK/L-GN
1310
WH
X101 16
15
17
26
2709
YE/RD
890
L-BU/WH
6281
BK/L-GN
1310
WH
X1 10
9
26
66
X2 51
5V1
K20
Engine
Control
Module

Controlled/Monitored Subsystem References

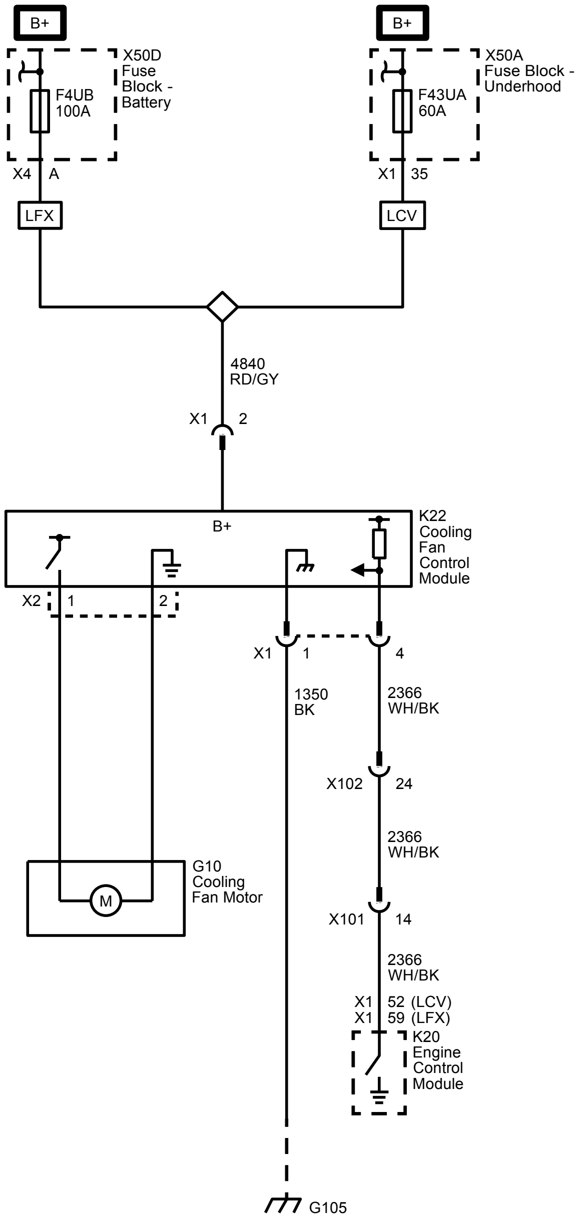

Automatic Transmission Controls Schematics
Starting and Charging Schematics
HVAC Schematics
Engine Heating/ Cooling Schematics
1786 WH/GY
225 L-BU/WH
23 GY
6386 VT/GY
459 WH/GY
380 L-GN
2700 BN/RD
5514 BK/BN
2366 WH/BK
X2
58
53
55
X1
63
32
6
21
22
59
5V1
K20 Engine Control Module
P/N
5V1
X1
57
X2
60
X3
2
1
17
6311 WH/L-BU
1174 BN/L-GN
2705 WH/RD
331 YE/BN
2755 BK/VT
Cruise Control Schematics
Engine Mechanical Schematics
Instrument Cluster Schematics

Engine Cooling

Schematic and Routing Diagrams

Engine Heating/Cooling Schematics

Engine Cooling Fans


B+
X50D
Fuse
Block -
Battery
F4UB
100A
X4
A
LFX
B+
X50A
Fuse Block -
Underhood
F43UA
60A
X1
35
LCV
4840
RD/GY
X1
2
B+
K22
Cooling
Fan
Control
Module
X2
1
2
X1
1
4
1350
BK
2366
WH/BK
X102
24
2366
WH/BK
X101
14
2366
WH/BK
X1 52 (LCV)
X1 59 (LFX)
K20
Engine
Control
Module
G10
Cooling
Fan Motor
M
G105

Description and Operation

Cooling Fan Description and Operation

Cooling Fan Control

The engine cooling fan system is composed of one electric cooling fan and a cooling fan control module. The engine control module (ECM) controls the fan speed by sending a pulse width modulated (PWM) signal to the cooling fan control module. The cooling fan control module varies the voltage drop across the cooling fan motor in relation to the pulse width modulated signal, allowing the cooling fan to operate at variable speeds. The cooling fan speed is effected by many different operating conditions and the ECM will adjust the duty cycle based on cooling system requirements.

This system is unique in that the ECM will not operate the cooling fan at every speed within a 0–90 percent range. The cooling fan calibration is designed to operate the cooling fan at 5 specific percentages in order to avoid the speed regions that create undesirable noise and vibration. During normal operating conditions the ECM may initially activate the cooling fan at 4 or 5 % and then increase to the desired percentages to satisfy powertrain cooling requirements. Generally, the ECM will operate the cooling fan at specific percentages but, may scale the percentages either higher or lower in response to generator demand. The percentages at which the cooling fan operates may vary between vehicle lines and engines.

The cooling fan control module is thermally protected to prevent module damage in the case of a short circuit condition in the cooling fan motor. The scan tool output control is only capable of operating the cooling fan in the speed percentages allowed by the ECM. When multiple cooling fan speed requests are received, the ECM operates the fan at the highest of the speed requests. The ECM commands the fans ON under the following conditions:

- The engine coolant temperature is warmer than a predetermined temperature.
- The engine oil temperature is warmer than a predetermined temperature.
- The A/C pressure reaches a predetermined pressure.
- If the engine coolant temperature at key-off is warmer than a predetermined value, or the A/C pressure is greater than a predetermined value, the cooling fan will operate at a low speed. The fan will shut OFF if the temperature or pressure drops below the predetermined value, but will only operate for 2 minutes, regardless of the coolant temperature or A/C pressure.

Cooling System Description and Operation (LFX)

Cooling System

The cooling system's function is to maintain an efficient engine operating temperature during all engine speeds and operating conditions. The cooling system is designed to remove approximately one-third of the heat produced by the burning of the air-fuel mixture. When the engine is cold, the system cools slowly or not at all. This allows the engine to warm quickly.

Cooling Cycle

Coolant is drawn from the radiator outlet and into the water pump inlet by the water pump. Some coolant will then be pumped from the water pump, to the heater core, then back to the water pump. This provides the passenger compartment with heat and defrost.

Coolant is also pumped through the water pump outlet and into the engine block. In the engine block, the coolant circulates through the water jackets surrounding the cylinders where it absorbs heat.

The coolant is then forced through the cylinder head gasket openings and into the cylinder heads. In the cylinder heads, the coolant flows through the water jackets surrounding the combustion chambers and valve seats, where it absorbs additional heat.

From the cylinder heads, the coolant is then forced to the thermostat. The flow of coolant will either be stopped at the thermostat until the engine is warmed, or it will flow through the thermostat and into the radiator where it is cooled and the coolant cycle is completed.

Operation of the cooling system requires proper functioning of all cooling system components. The cooling system consists of the following components:

Coolant

The engine coolant is a solution made up of a 50-50 mixture of DEX-COOL and clean drinkable water. The coolant solution carries excess heat away from the engine to the radiator, where the heat is dissipated to the atmosphere.

Radiator

The radiator is a heat exchanger. It consists of a core and two tanks. The aluminum core is a downflow tube and fin design. This is a brazed tube with convoluted louvered fin design. Separate tubes and fins are stacked together with a manifold at each end. The entire assembly is then brazed forming a homogeneous unified structure. The fins allow for efficient heat transfer from the coolant to the atmosphere. The inlet and outlet tanks are molded with a high temperature, glass reinforced nylon plastic. The tank and gasket is supplied as an assembly with silicone gasket attached to the tank. The tanks are clamped to the core with clinch tabs. The tabs are part of the aluminum header at each end of the core. The radiator also has a drain cock which is located in the bottom right of the lower tank. The drain cock includes the drain cock and drain cock seal.

The radiator removes heat from the coolant passing through it. The fins on the core absorb heat from the coolant passing through the tubes. As air passes between the fins, it absorbs heat and cools the coolant.

During vehicle use, the coolant heats and expands. The coolant that is displaced by this expansion flows into the overflow tank. As the coolant circulates, air is allowed to exit. Coolant without bubbles absorbs heat much better than coolant with bubbles.

Pressure Cap

The pressure cap is a cap that seals and pressurizes the cooling system. It contains a blow off or pressure valve and a vacuum or atmospheric valve. The pressure valve is held against its seat by a spring and protects the radiator by relieving pressure if it exceeds 20 psi. The vacuum valve is held against its seat by a spring, which permits opening of the valve to relieve vacuum created in the cooling system as it cools off. The vacuum, if not relieved, could cause the radiator hoses to collapse.

The pressure cap allows pressure in the cooling system to build up. As the pressure builds, the boiling point of the coolant goes up as well. Therefore, the coolant can be safely run at a temperature higher than the boiling point of the coolant at atmospheric pressure. The hotter the coolant is, the faster the heat moves from the radiator to the cooler passing air. However, if the pressure exceeds the strength of the spring, the pressure valve rises so that the excess pressure can escape. When the engine cools down, the temperature of the coolant drops and a vacuum is created in the cooling system. This vacuum causes the vacuum valve to open, allowing outside air into the cooling system. This equalizes the pressure in the cooling system with atmospheric pressure, thus preventing the radiator hoses from collapsing.

Surge Tank

The surge tank is a plastic tank with a threaded pressure cap. The tank is mounted at a point higher than all other coolant passages. The surge tank provides an air space in the cooling system that allows the coolant to expand and contract. The surge tank provides a coolant fill point and a central air bleed location.

During vehicle use, the coolant heats and expands. The increased coolant volume flows into the surge tank. As the coolant circulates, any air is allowed to bubble out. Coolant without air bubbles absorbs heat much better than coolant with bubbles.

During vehicle use, the coolant heats and expands. The increased coolant volume can in some conditions push past the pressure cap and through a channel into the overflow bottle. As the coolant circulates, air is allowed to bubble out. This air is then transferred to the overflow bottle, through the surge tank cap, where it returns to the atmosphere. Coolant without air bubbles absorbs heat much better than coolant with bubbles. When the engine cools, the coolant, without air bubbles, contracts back into the surge tank from the bottom of the overflow bottle.

Air Baffles and Seals

The cooling system uses deflectors, air baffles and air seals to increase system cooling. Deflectors are installed under the vehicle to redirect airflow beneath the vehicle to flow through the radiator and increase cooling. Air baffles are also used to direct airflow into the radiator and increase cooling. Air seals prevent air from bypassing the radiator and A/C condenser. Air seals also prevent recirculation of the air for better hot weather cooling and A/C condenser performance.

Engine Oil Cooler

The engine oil cooler is a heat exchanger located inside the lower end tank of the radiator. The engine oil temperature is controlled by the temperature of the engine coolant that surrounds the oil cooler in the radiator.

The engine oil pump, pumps the oil through the engine oil cooler line to the oil cooler. The oil then flows through the cooler where the engine coolant absorbs heat from the oil. The oil is then pumped through the oil cooler return line, to the engine block system.

Transmission Oil Cooler

The transmission oil cooler is a heat exchanger. The air conditioning condenser is a multi-cooler that contains the transmission oil cooler heat exchanger. The transmission fluid temperature is regulated by the temperature of the air passing through the heat exchanger.

The transmission oil pump, pumps the fluid through the transmission oil cooler feed line to the oil cooler. The fluid then flows through the cooler while the passing through the heat exchanger absorbs heat from the fluid. The fluid is then pumped through the transmission oil cooler return line, to the transmission.

HVAC

Heating, Ventilation, and Air Conditioning

Specifications

Adhesives, Fluids, Lubricants, and Sealers

Adhesives, Fluids, Lubricants, and Sealers

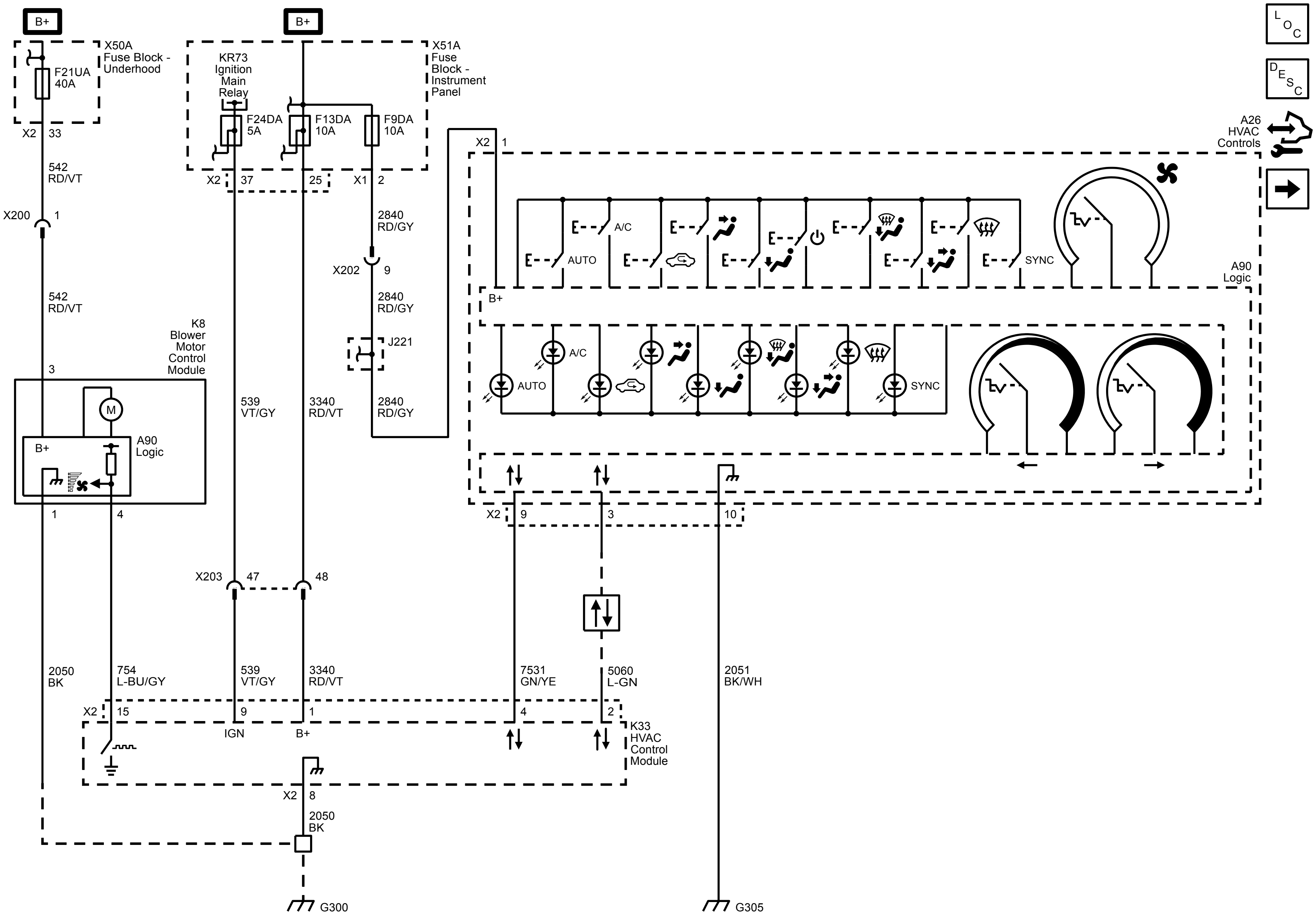
Application	Type of Material	GM Part Number	
		United States	Canada
PAG Oil (R-134a)	Lubricant	12378526	88900060

HVAC - Automatic

Schematic and Routing Diagrams

HVAC Schematics

Power, Ground, Serial Data, HVAC and Blower Controls



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X50A
Fuse Block -
Underhood
F21UA
40A
X2 33
542
RD/VT
X200 1
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RD/VT
K8
Blower
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Control
Module
3
M
B+
A90
Logic
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4
B+
KR73
Ignition
Main
Relay
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5A
F13DA
10A
F9DA
10A
X51A
Fuse
Block -
Instrument
Panel
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25
X1 2
2840
RD/GY
X202 9
2840
RD/GY
J221
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VT/GY
3340
RD/VT
2840
RD/GY
X2 1
A26
HVAC
Controls
A/C
AUTO
SYNC
A90
Logic
B+
A/C
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X2 9
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X203 47
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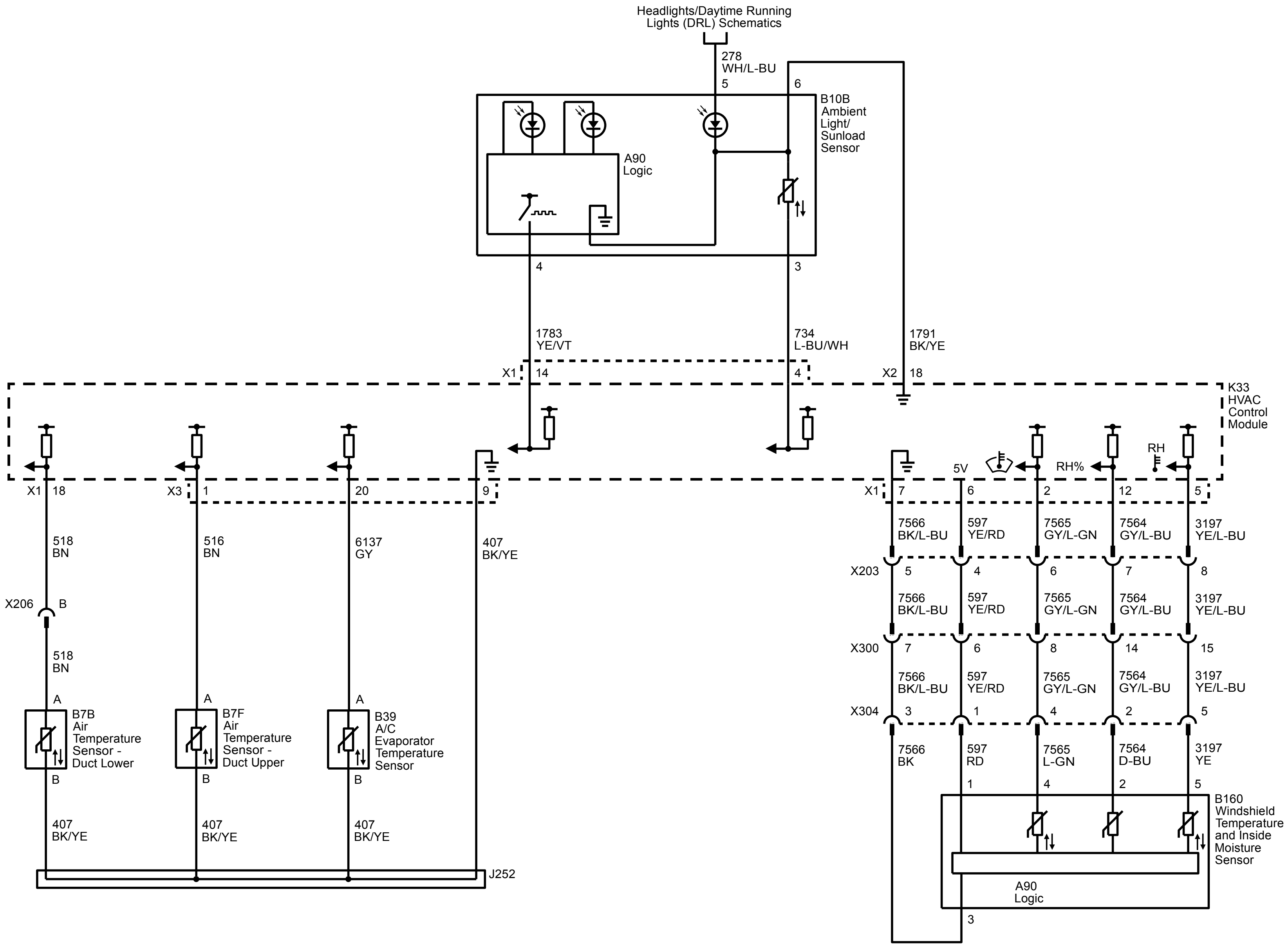
Headlights/Daytime Running Lights (DRL) Schematics
278
WH/L-BU
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6
B10B
Ambient Light/ Sunload Sensor
A90
Logic
4
3
1783
YE/VT
734
L-BU/WH
1791
BK/YE
X1
14
4
X2
18
K33
HVAC Control Module
5V
RH%
RH
X1
18
X3
1
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X1
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12
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518
BN
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BN
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GY
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518
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Air Temperature Sensor - Duct Lower
B
A
B7F
Air Temperature Sensor - Duct Upper
B
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B39
A/C Evaporator Temperature Sensor
B
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BK/YE
407
BK/YE
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BK/YE
J252
7566
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RD
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L-GN
7564
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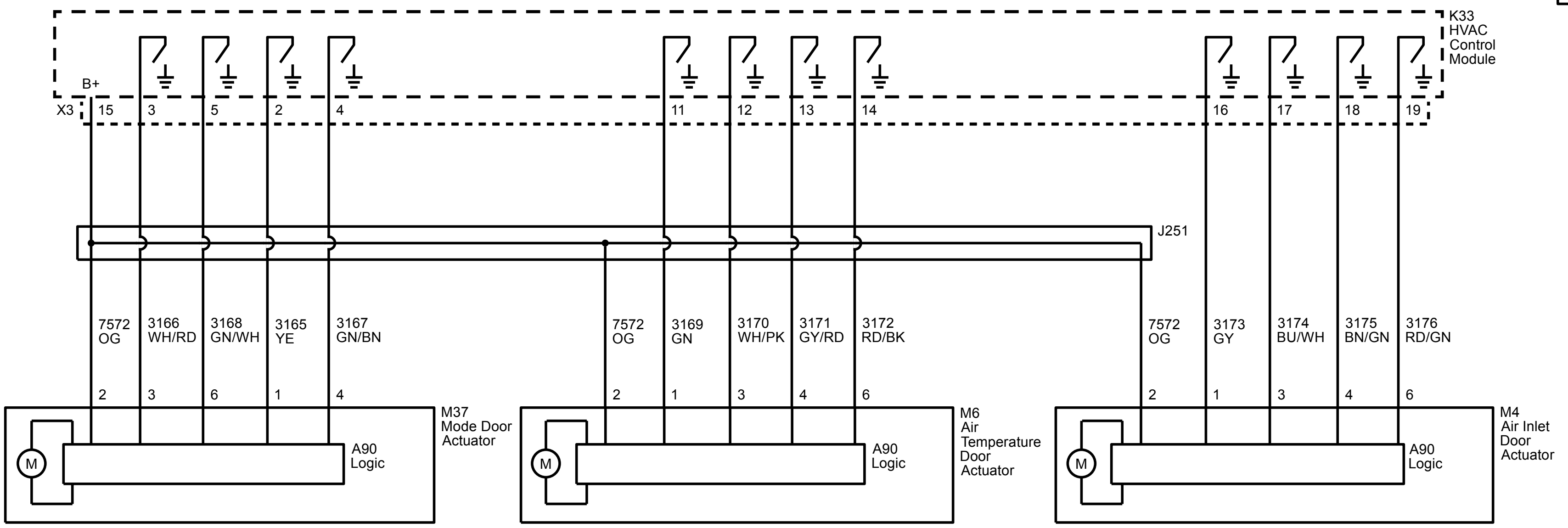
5
B160
Windshield Temperature and Inside Moisture Sensor
A90
Logic
3

Mode and Temperature Control Actuators



K33
HVAC
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Module
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WH/RD
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BN/GN
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RD/GN
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M37
Mode Door
Actuator
M
A90
Logic
2
1
3
4
6
M6
Air
Temperature
Door
Actuator
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A90
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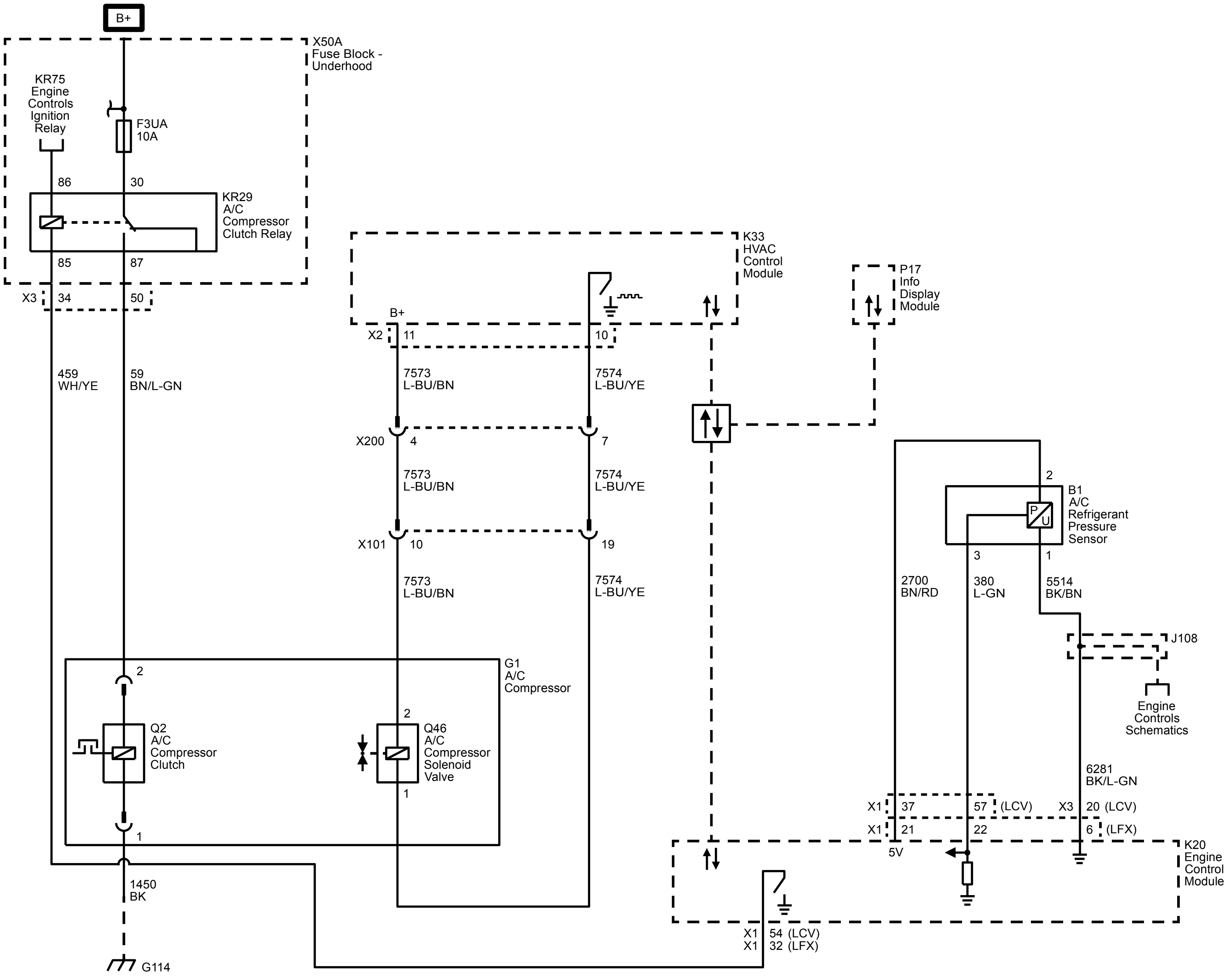
2
1
3
4
6
M4
Air Inlet
Door
Actuator
M
A90
Logic

A/C Compressor Controls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Fuse Block -
Underhood
KR75
Engine
Controls
Ignition
Relay
F3UA
10A
86
30
KR29
A/C
Compressor
Clutch Relay
85
87
X3
34
50
459
WH/YE
59
BN/L-GN
K33
HVAC
Control
Module
B+
X2
11
10
7573
L-BU/BN
7574
L-BU/YE
P17
Info
Display
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X200
4
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7573
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L-BU/YE
X101
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L-BU/BN
7574
L-BU/YE
2
B1
A/C
Refrigerant
Pressure
Sensor
P
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3
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2700
BN/RD
380
L-GN
5514
BK/BN
J108
Engine
Controls
Schematics
G1
A/C
Compressor
2
Q2
A/C
Compressor
Clutch
2
Q46
A/C
Compressor
Solenoid
Valve
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BK/L-GN
X1
37
57
(LCV)
X3
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(LCV)
X1
21
22
6
(LFX)
5V
K20
Engine
Control
Module
1450
BK
X1
54 (LCV)
X1
32 (LFX)
G114

Description and Operation

Automatic HVAC Description and Operation

The air temperature and the air delivery description and operation are divided into eight areas:

- HVAC Control Components
- Air Speed
- Air Delivery
- Heating and A/C Operation
- Recirculation Operation
- Automatic Operation
- Engine Coolant
- A/C Cycle

HVAC Control Components

HVAC Control

The HVAC controls contains all buttons, switches, and dials which are required to control the functions of the HVAC system and serve as an interface between the operator and the HVAC control module. The selected values are passed to the HVAC control module via LIN-Bus.

HVAC Control Module

The HVAC control module is a GMLAN device that interfaces between the operator and the HVAC system to maintain and control desired air temperature and air distribution settings. The battery positive voltage circuit provides power that the HVAC control module uses for keep alive memory. If the battery positive voltage circuit loses power, all HVAC DTCs and settings will be erased from keep alive memory. The body control module (BCM), which is the vehicle mode master, provides a device ON-Signal. The HVAC control module provides blower, air delivery mode and air temperature settings.

The HVAC control module supports the following features:

Feature	Availability
Afterblow	Available if reprogrammed by the technician
Purge	Yes
Personalization	Yes
Actuator Calibration	Yes

Mode Actuator

The mode actuator is a 5-wire stepper motor. The HVAC control module supplies a 12 V reference voltage to the stepper motor and energizes the 4 stepper motor coils with a pulsed ground signal. The stepper motor puts the mode door into the calculated position in order to reach the selected position. The null point of the stepper motor will be calibrated, if the stepper motor is new. When the stepper motor is calibrated, the HVAC control module can drive the applicable coil to reach exactly the desired position of the mode door.

Air Temperature Actuator

The air temperature actuator is a 5-wire stepper motor. The HVAC control module supplies a 12 V reference voltage to the stepper motor and energizes the 4 stepper motor coils with a pulsed ground signal. The air temperature actuator puts the mixed air door into the calculated position, in order to reach the selected temperature of the temperature controls. The null point of the stepper motor will be calibrated, if the stepper motor is new. When the stepper motor is calibrated, the HVAC control module can drive the applicable coil to reach exactly the desired position of the air temperature door.

Recirculation Actuator

The recirculation actuator is a 5-wire stepper motor. The HVAC control module supplies a 12 V reference voltage to the stepper motor and energizes the 4 stepper motor coils with a pulsed ground signal. The stepper motor puts the recirculation door into the calculated position in order to reach the desired position. The null point of the stepper motor will be calibrated, if the stepper motor is new. When the stepper motor is calibrated, the HVAC control module can drive the applicable coil to reach exactly the desired position of the recirculation door.

Blower Motor and Module

The blower motor control processor controls the speed of the blower motor by increasing or decreasing the voltage drop on the ground side of the blower motor. The HVAC control module provides a low side pulse width modulation (PWM) signal to the blower motor control processor via the blower motor speed control circuit. As the requested blower speed increases, the HVAC control module increases the amount of time that the speed signal is modulated to ground. As the requested blower speed decreases, the HVAC control module decreases the amount of time that the signal is modulated to ground.

Evaporator Temperature Sensor

The evaporator temperature sensor is a 2-wire negative temperature coefficient thermistor. The sensor operates within a temperature range of −40 to +85°C (−40 to +185°F). The sensor is installed at the evaporator and measures its temperature. If the temperature drops under 3°C (38°F), the compressor will be switched off in order to prevent a frozen evaporator.

Air Quality Sensor

The HVAC control module uses an air quality sensor to detect hydrocarbons. This sensor operates using an ignition voltage circuit, a ground circuit and a signal circuit. This information is sent to the HVAC control module using a pulse width modulated (PWM) signal. It is used only when the automatic HVAC mode is requested by the customer. When the HVAC module detects the concentration of hydrocarbons exceeds a preset value, recirculation mode is commanded to keep the passenger compartment free of pollutants.

Duct Temperature Sensors

The air temperature sensors are 2-wire negative temperature coefficient thermistors. The sensors operate within a temperature range of −40 to +85°C (−40 to +185°F). The sensors are installed in the air distribution ducts and measurethe temperature of the air that streams from the ducts. The HVAC control module uses these values to calculate the desired Air temperature door position.

A/C Refrigerant Pressure Sensor

The A/C refrigerant pressure sensor is a 3-wire piezoelectric pressure transducer. The 5 V reference voltage, low reference, and signal circuits enable the sensor to operate. The A/C pressure signal can be between 0.2–4.8 V. When the A/C refrigerant pressure is low, the signal value is near 0 V. When the A/C refrigerant pressure is high, the signal value is near 5 V. The engine control module (ECM) converts the voltage signal to a pressure value. When pressure is too high or too low, the ECM will not allow the A/C compressor clutch to engage.

A/C Compressor

The A/C compressor uses a conventional belt driven magnetic clutch to engage and mechanically turn the compressor. When the A/C switch is pressed, the HVAC control module sends an A/C request message to the ECM via serial data. If specific criteria is met, the ECM then grounds the A/C compressor clutch relay control circuit, which will switch the A/C compressor clutch relay. With the relay contacts closed, battery voltage is supplied to the permanently grounded A/C compressor clutch. The A/C compressor clutch will then be activated.

This A/C system utilizes a variable displacement solenoid valve to alter the amount of displacement created by the turning of the compressor. The HVAC control module provides both battery voltage and a pulse width modulated ground to the variable displacement solenoid valve. When the A/C switch is pressed, the HVAC control module grounds the variable displacement solenoid using a (PWM) signal in order to determine the amount of compressor displacement. The performance of the A/C compressor is regulated based on the adjusted interior temperature.

Windshield Temperature and Inside Moisture Sensor

The windshield temperature and inside moisture sensor assembly provides information about:

- Relative humidity level at windshield (compartment side)
- Temperature of the windshield inside (compartment side)
- Temperature of the humidity sensor element

The relative humidity sensor measures the relative humidity of the compartment side of the windshield. It also detects the temperature of the windshield surface on the passenger compartment side. Both values are used as control inputs for the HVAC control module application to calculate the fog risk on windshield compartment side and ability to reduce fuel consumption by decreasing A/C compressor power to a minimum without causing any fog. The sensor will also enable partial recirculation mode in order to improve heat-up performance of the passenger compartment under cold ambient temperature conditions without the risk of mist build-up on the windshield. The humidity sensor element temperature sensor supplies the temperature of the humidity sensor element. It is only needed if the thermal contact between the humidity sensing element and the inside windshield surface is not sufficient.

Auxiliary Electric Heater (Diesel ONLY)

Models equipped with a diesel engine are also equipped with an auxiliary electric heater grid to provide faster cabin warm-ups in cold climates. The auxiliary heater grid is mounted in the low-center of the HVAC module, where heat is transferred from the grid to air which is directed to the floor outlet ducts.

The auxiliary heater is enabled only when the cabin temperature is set to MAX, the engine coolant temperature is less than 80°C (176°F), and the outside air temperature is below 12°C (54°F). When engine coolant temperature rises above 80°C (176°F), the temperature control is moved away from the MAX position, or the outside air temperature is above 12°C (54°F), the auxiliary electric heater is disabled, and cabin heat is managed only by the coolant-based heater core and temperature door position. If the auxiliary electric heater is activated and then turns off, it can actuate once again if the engine coolant temperature drops below 75°C (167°F), or the outside air temperature drops below 8°C (46°F).

The actual amount of heat output from the auxiliary electric heater can vary and is dependant upon internal overheating protection, battery state of charge, and other vehicle electrical load requirements.

Air Speed

The blower control switch is part of the HVAC controls. The selected value of the blower switch position is sent to the HVAC control module via LIN-Bus.

The HVAC control module provides a PWM signal to the blower motor control module in order to command the desired blower motor speed.

Air Delivery

The desired air distribution mode can be selected with the air distribution switches at the HVAC controls. The HVAC controls delivers the values to the HVAC control module via LIN-Bus. The HVAC control module controls the air distribution actuator so that it drives the flap to the calculated position. Depending on the position of the flap, air is distributed through various ducts leading to the outlets in the dash. Turning the mode flap to the defrost position, the HVAC control module will move the recirculation actuator to outside air, reducing window fogging. When defrost is selected, the blower motor will be activated, regardless of the coolant temperature. The HVAC control module enables a high volume of air delivered to the front defrost vents. A/C is available in all modes.

The rear window defogger does not affect the HVAC system.

Heating and A/C Operation

The purpose of the heating and A/C system is to provide heated and cooled air to the interior of the vehicle. The A/C system will also remove humidity from the interior and reduce windshield fogging. Regardless of the temperature setting, the following can affect the rate that the HVAC system can achieve the desired temperature:

- Recirculation actuator setting
- Difference between inside and desired temperature
- Blower motor speed setting
- Mode setting

This vehicle may be equipped with a low voltage positive temperature coefficient cabin air heater. This is an electrical grid heater located in the HVAC case consisting of three 330 W stages used to heat the passenger compartment under cold conditions. When max temperature is selected and the engine coolant has not yet reached a sufficient temperature, the cabin air heater will be cycled on by the HVAC control module. The HVAC control module will monitor conditions in order to determine when to reduce or turn off the electrical cabin air heater.

When the A/C switch is pressed, the HVAC controls sends a signal to the HVAC control module via LIN-Bus. The HVAC control module evaluates this signal and sends an A/C request signal to the ECM via CAN-Bus. The ECM checks all preconditions before releasing and if all conditions are met sends a release signal back to the HVAC control module.

The following conditions must be met in order to activate the A/C compressor:

- Battery voltage is between 9–18 V
- Engine coolant temperature is less than 124°C (255°F)
- Engine speed is greater than 600 RPM
- Engine speed is less than 5 500 RPM
- A/C high side pressure is between 269–2 929 kPa (39–425 PSI)
- Throttle position is less than 100%
- Evaporator temperature is greater than 3°C (38°F)
- ECM does not detect excessive torque load
- ECM does not detect insufficient idle quality
- The ambient temperature is above 1°C (34°F)

The A/C high side pressure sensor information is used by the ECM to determine the following:

- The A/C high side pressure
- An A/C system load on the engine
- An immoderate A/C high side pressure
- The heat load at the A/C condenser

The air streams into the passenger compartment through the heater core and the evaporator core. The air temperature actuator drives the mixed air flap to determine the path of the incoming air. If the interior temperature should be increased, the mixed air flap is put into the position in which more air streams through the heater core. If the interior temperature should be decreased, the mixed air flap is put into the position in which more air streams through the evaporator core.

Recirculation Operation

The recirculation switch is integrated into the HVAC controls. The selected recirculation switch position is sent to the HVAC control module via LIN-Bus. The HVAC control module controls the air intake through the air inlet actuator and recirculation actuator. In the recirculation mode the air inlet flap closes and the recirculation flap opens in order to circulate the air within the vehicle. In fresh air mode the air inlet flap opens and the recirculation flap is closed again in order to route outside air into the vehicle. Recirculation is only available if the defrost mode is not active. When the defrost mode is active, the recirculation actuator opens the recirculation flap and the air inlet actuator opens the air inlet flap and outside air is circulated to the windshield to reduce fogging.

Automatic Operation

In automatic operation, the HVAC control module maintains the comfort level inside of the vehicle by controlling the A/C compressor clutch, the blower motor, the air temperature actuators, mode actuator and recirculation actuator.

To put the HVAC system in automatic mode, the following is required:

1. The auto switch must be activated.
2. The air temperature switch must be in any other position than full hot or full cold position.

Once the desired temperature is reached, the blower motor, mode, recirculation and temperature actuators automatically adjust to maintain the temperature selected. The HVAC control module performs the following functions to maintain the desired air temperature:

- Monitors the following sensors:
  - Ambient air temperature sensor
  - Lower left air temperature sensor
  - Upper left air temperature sensor
  - Windshield temperature and inside moisture sensor
  - Ambient light/sunload sensor
  - Air quality sensor
- Regulate blower motor speed
- Position the air temperature actuator
- Position the mode actuator
- Position the recirculation actuator
- Request A/C operation

When the warmest position is selected in automatic operation the blower speed will increase gradually until the vehicle reaches normal operating temperature. When normal operating temperature is reached the blower stays on high speed and the air temperature actuators stays in the full heat position.

When the coldest position is selected in automatic operation the blower stays on high and the air temperature actuators stay in full cold position. The mode actuator remains in the panel position and the recirculation actuator will remain in the recirculation position.

Under cold ambient temperatures, the automatic HVAC system provides heat in the most efficient manner. The operator can select an extreme temperature setting but the system will not warm the vehicle any faster. Under warm ambient temperatures, the automatic HVAC system also provides air conditioning in the most efficient manner. Selecting an extreme cool temperature will not cool the vehicle any faster.

The HVAC control module evaluates the information of the air quality sensor and closes the recirculation flap while the air quality sensor switch is pressed, as soon as the concentration of pollutants exceeds a predefined value.

In automatic mode the values of the windshield temperature and inside moisture sensor are used as control inputs for the HVAC control module application to calculate the fog risk on the passenger compartment side of the windshield and ability to reduce fuel consumption by decreasing A/C compressor power to a minimum without causing any fog. The A/C compressor and the defrost mode are activated to prevent or remove fog on the passenger compartment side of the windshield. The sensor will also enable partial recirculation mode in order to improve heat-up performance of the passenger compartment under cold ambient temperature conditions without the risk of mist build-up on the windshield.

Engine Coolant

Engine coolant is the essential element of the heating system. The thermostat controls the normal engine operating coolant temperature. The thermostat also creates a restriction for the cooling system that promotes a positive coolant flow and helps prevent cavitation.

Coolant enters the heater core through the inlet heater hose, in a pressurized state. The heater core is located inside the HVAC module. The ambient air drawn through the HVAC module absorbs the heat of the coolant flowing through the heater core. Heated air is distributed to the passenger compartment, through the HVAC module, for passenger comfort. Opening or closing the air temperature flap controls the amount of heat delivered to the passenger compartment. The coolant exits the heater core through the return heater hose and recirculates back to the engine cooling system.

A/C Cycle

Refrigerant is the key element in an air conditioning system. R-134a is presently the only Environmental Protection Agency approved refrigerant for automotive use. R-134a is a very low temperature gas that can transfer the undesirable heat and moisture from the passenger compartment to the outside air.

The compressor builds pressure on the vapor refrigerant. Compressing the refrigerant also adds heat to the refrigerant. The refrigerant is discharged from the compressor, through the discharge hose, and forced to flow to the condenser and then through the balance of the A/C system. The A/C system is mechanically protected with the use of a high pressure relief valve. If the A/C refrigerant pressure sensor fails or if the refrigerant system becomes restricted and refrigerant pressure continued to rise, the high pressure relief will pop open and release refrigerant from the system.

Compressed refrigerant enters the condenser in a high temperature, high pressure vapor state. As the refrigerant flows through the condenser, the heat of the refrigerant is transferred to the ambient air passing through the condenser. Cooling the refrigerant causes the refrigerant to condense and change from a vapor to a liquid state.

The condenser is located in front of the radiator for maximum heat transfer. The condenser is made of aluminum tubing and aluminum cooling fins, which allows rapid heat transfer for the refrigerant. The semi-cooled liquid refrigerant exits the condenser and flows to the Receiver/Dehydrator(R/D).

The R/D contains desiccant that absorbs moisture that may be in the refrigerant system. The R/D also acts as a storage vessel to ensure that a steady flow of liquid reaches the Thermal Expansion Valve. The refrigerant exits the R/D and flows through the liquid line to the Thermal Expansion Valve.

The Thermal Expansion Valve is located at the front of dash and attaches to the evaporator inlet and outlet pipes. The Thermal Expansion Valve is the dividing point for the high and the low pressure sides of the A/C system. As the refrigerant passes through the Thermal Expansion Valve, the pressure on the refrigerant is lowered. The Thermal Expansion Valve also meters the amount of liquid refrigerant that can flow into the evaporator.

Refrigerant exiting the Thermal Expansion Valve flows into the evaporator core in a low pressure, liquid state. Ambient air is drawn through the HVAC module and passes through the evaporator core. Warm and moist air will cause the liquid refrigerant boil inside of the evaporator core. The boiling refrigerant absorbs heat from the ambient air and draws moisture onto the evaporator. The refrigerant exits the evaporator through the suction line and back to the A/C compressor, in a vapor state, and completing the A/C cycle of heat removal. At the A/C compressor, the refrigerant is compressed again and the cycle of heat removal is repeated.

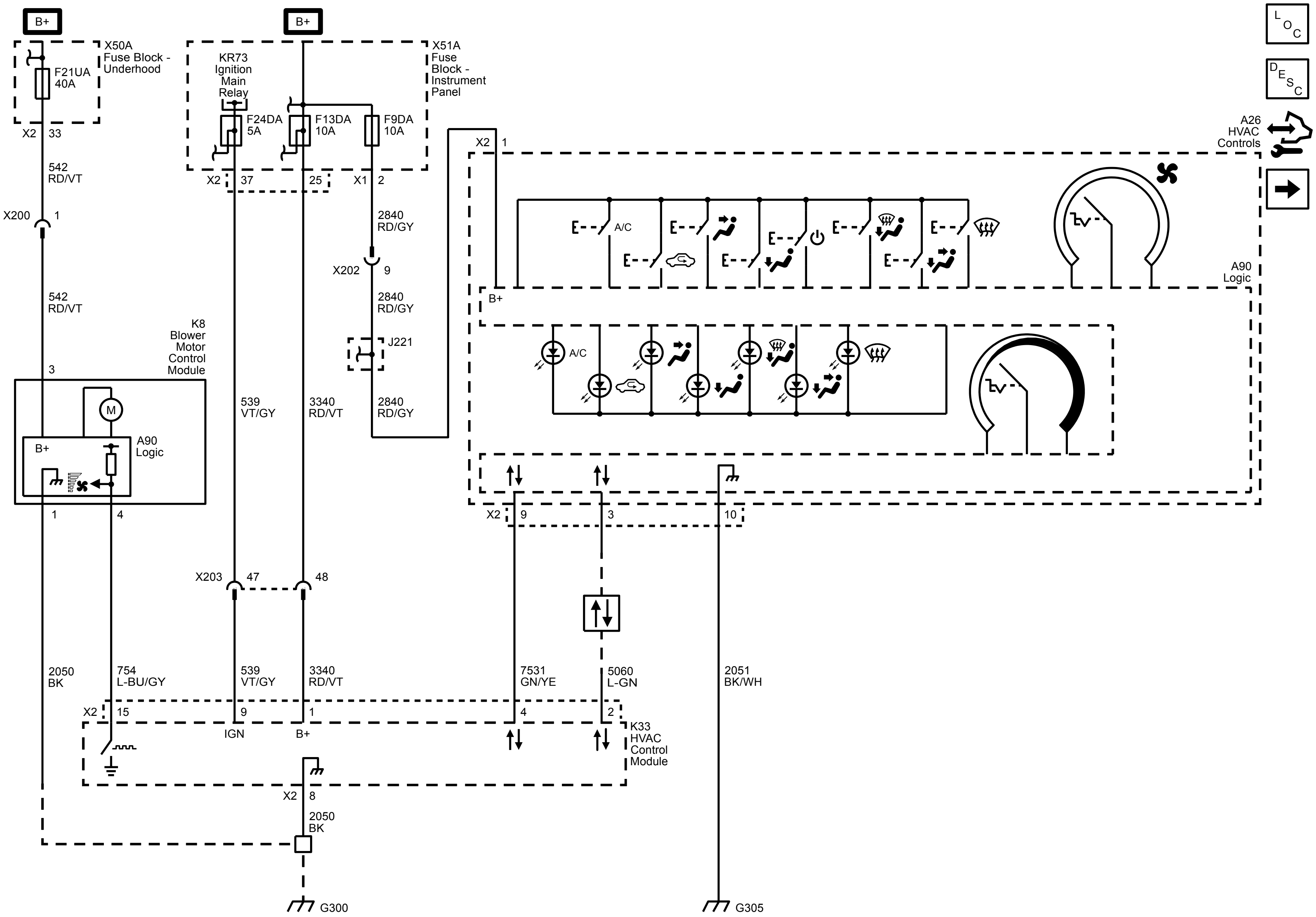
The conditioned air is distributed through the HVAC module for passenger comfort. The heat and moisture removed from the passenger compartment will also change form, or condense, and is discharged from the HVAC module as water.

HVAC - Manual

Schematic and Routing Diagrams

HVAC Schematics

Power, Ground, Serial Data, HVAC and Blower Controls


B+
X50A
Fuse Block -
Underhood
F21UA
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X2
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542
RD/VT
X200
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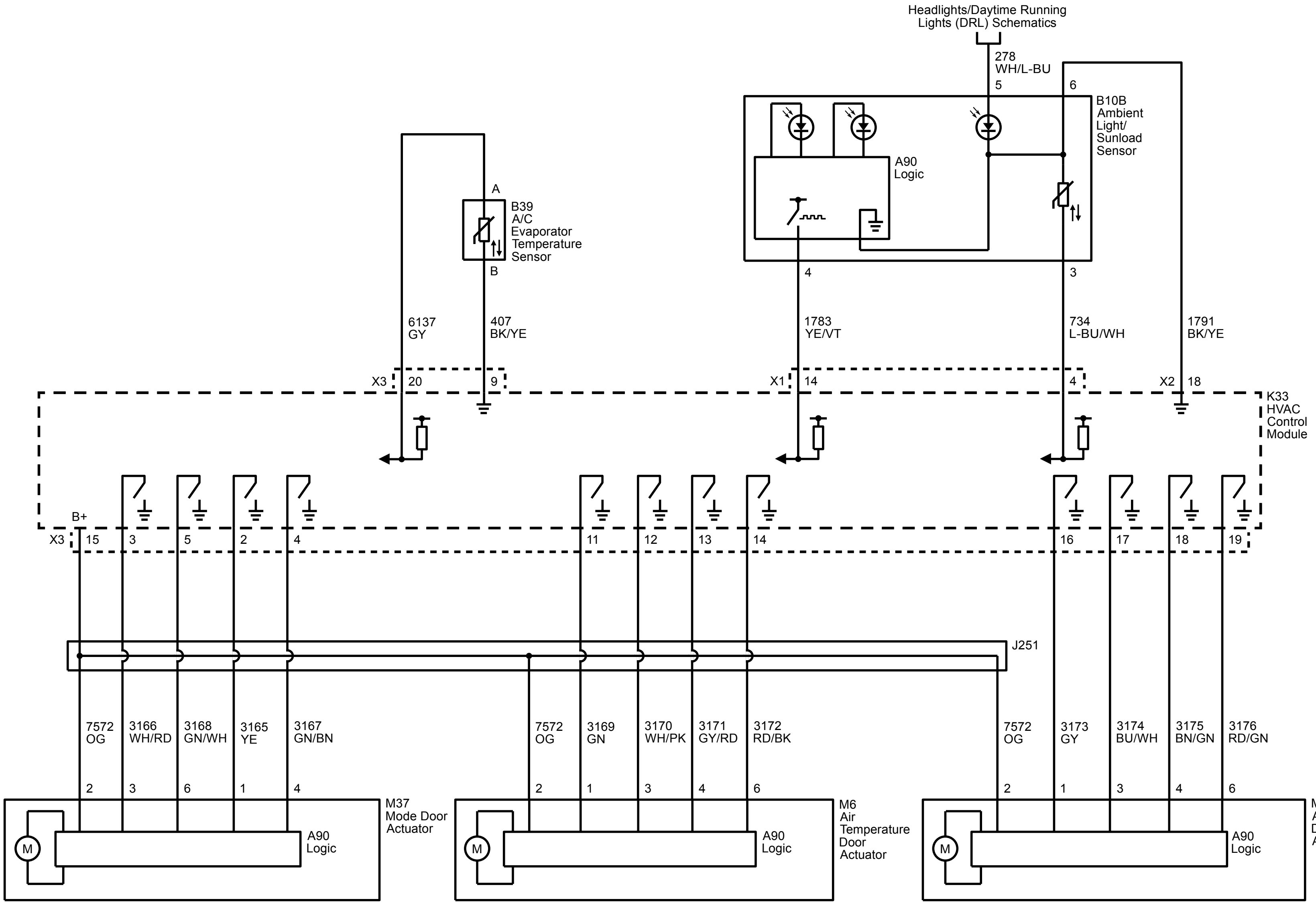
RD/VT
K8
Blower
Motor
Control
Module
3
M
B+
A90
Logic
1
4
2050
BK
754
L-BU/GY
B+
KR73
Ignition
Main
Relay
F24DA
5A
F13DA
10A
F9DA
10A
X51A
Fuse
Block -
Instrument
Panel
X2
37
25
X1
2
2840
RD/GY
X202
9
2840
RD/GY
J221
539
VT/GY
3340
RD/VT
2840
RD/GY
X203
47
48
539
VT/GY
3340
RD/VT
X2
15
9
1
4
2
IGN
B+
K33
HVAC
Control
Module
X2
8
2050
BK
G300
X2
1
A26
HVAC
Controls
A/C
A90
Logic
B+
A/C
X2
9
3
10
7531
GN/YE
5060
L-GN
2051
BK/WH
G305
L O C
D E S C

Temperature Sensors and Actuators


Headlights/Daytime Running Lights (DRL) Schematics
278
WH/L-BU
5
6
B10B
Ambient
Light/
Sunload
Sensor
A90
Logic
4
3
A
B39
A/C
Evaporator
Temperature
Sensor
B
6137
GY
407
BK/YE
1783
YE/VT
734
L-BU/WH
1791
BK/YE
X3
20
9
X1
14
4
X2
18
K33
HVAC
Control
Module
B+
X3
15
3
5
2
4
11
12
13
14
16
17
18
19
J251
7572
OG
3166
WH/RD
3168
GN/WH
3165
YE
3167
GN/BN
7572
OG
3169
GN
3170
WH/PK
3171
GY/RD
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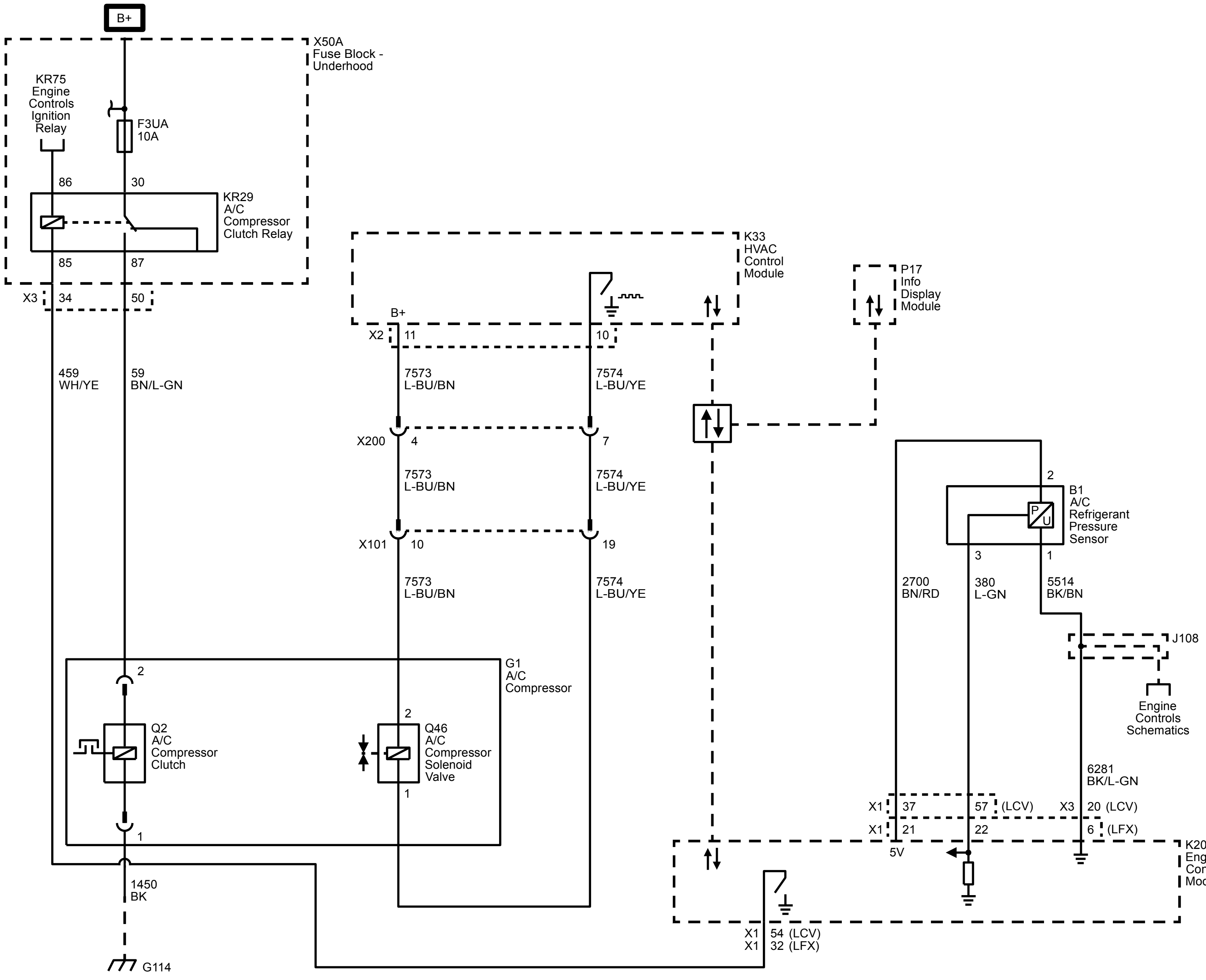
RD/BK
7572
OG
3173
GY
3174
BU/WH
3175
BN/GN
3176
RD/GN
2
3
6
1
4
M37
Mode Door
Actuator
M
A90
Logic
2
1
3
4
6
M6
Air
Temperature
Door
Actuator
M
A90
Logic
2
1
3
4
6
M4
Air Inlet
Door
Actuator
M
A90
Logic

A/C Compressor Controls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X50A
Fuse Block -
Underhood
KR75
Engine
Controls
Ignition
Relay
F3UA
10A
86
30
KR29
A/C
Compressor
Clutch Relay
85
87
X3
34
50
459
WH/YE
59
BN/L-GN
K33
HVAC
Control
Module
B+
X2
11
10
7573
L-BU/BN
7574
L-BU/YE
P17
Info
Display
Module
X200
4
7
7573
L-BU/BN
7574
L-BU/YE
X101
10
19
7573
L-BU/BN
7574
L-BU/YE
2
B1
A/C
Refrigerant
Pressure
Sensor
P
U
3
1
2700
BN/RD
380
L-GN
5514
BK/BN
J108
Engine
Controls
Schematics
G1
A/C
Compressor
2
Q2
A/C
Compressor
Clutch
2
Q46
A/C
Compressor
Solenoid
Valve
1
1
6281
BK/L-GN
X1
37
57
(LCV)
X3
20
(LCV)
X1
21
22
6
(LFX)
5V
K20
Engine
Control
Module
1450
BK
X1
X1
54 (LCV)
32 (LFX)
G114

Description and Operation

Manual HVAC Description and Operation

The air temperature and the air delivery description and operation are divided into seven areas:

- HVAC Control Components
- Air Speed
- Air Delivery
- Heating and A/C Operation
- Recirculation Operation
- Engine Coolant
- A/C Cycle

HVAC Control Components

HVAC Controls

The HVAC controls contains all switches, which are required to control the functions of HVAC and serve as interface between the operator and the HVAC control module. The selected values are passed to the HVAC control module via LIN-Bus.

HVAC Control Module

The HVAC control module is a GMLAN device that interfaces between the operator and the HVAC system to maintain and control desired air temperature and air distribution settings. The battery positive voltage circuit provides power that the HVAC control module uses for keep alive memory. If the battery positive voltage circuit loses power, all HVAC DTCs and settings will be erased from keep alive memory. The body control module (BCM), which is the vehicle mode master, provides a device ON-Signal. The HVAC control module provides blower, air delivery mode and air temperature settings.

The HVAC control module supports the following features:

Feature	Availability
Afterblow	Available if reprogrammed by the technician
Personalization	Yes
Actuator Calibration	Yes

Mode Actuator

The mode actuator is a 5-wire stepper motor. The HVAC control module supplies a 12 V reference voltage to the stepper motor and energizes the 4 stepper motor coils with a pulsed ground signal. The stepper motor puts the mode flap into the calculated position in order to reach the selected position. The null point of the stepper motor will be calibrated, if the stepper motor is new. When the stepper motor is calibrated, the HVAC control module can drive the applicable coil to reach exactly the desired position of the flap.

Air Temperature Actuator

The air temperature actuator is a 5-wire stepper motor. The HVAC control module supplies a 12 V reference voltage to the stepper motor and energizes the 4 stepper motor coils with a pulsed ground signal. The air temperature actuator puts the mixed air flap into the calculated position, in order to reach the selected temperature of the temperature switch. The null point of the stepper motor will be calibrated, if the stepper motor is new. When the stepper motor is calibrated, the HVAC control module can drive the coil to reach exactly the desired position of the flap.

Recirculation Actuator

The recirculation actuator is a 5-wire stepper motor. The HVAC control module supplies a 12 V reference voltage to the stepper motor and energizes the 4 stepper motor coils with a pulsed ground signal. The stepper motor puts the recirculation flap into the calculated position in order to reach the desired position. The null point of the stepper motor will be calibrated, if the stepper motor is new. When the stepper motor is calibrated, the HVAC control module can drive the applicable coil to reach exactly the desired position of the flap.

Blower Motor

The blower motor speed control signal from the HVAC Control Module, battery positive and ground circuits enable the blower motor to operate. The blower motor control circuitry is integrated within the blower motor assembly. The HVAC Control Module provides a pulse width modulation (PWM) signal to the blower motor to request a specific motor speed. The blower motor translates the PWM signal and drives the motor accordingly. As the requested blower speed increases, the HVAC control module increases the amount of time that the speed signal is modulated to ground. As the requested blower speed decreases, the HVAC control module decreases the amount of time that the signal is modulated to ground.

Evaporator Temperature Sensor

The evaporator temperature sensor is a 2-wire negative temperature co-efficient thermistor. The sensor operates within a temperature range of −40 to +85°C (−40 to +185°F). The sensor is installed at the evaporator and measures its temperature. If the temperature drops under 3°C (38°F), the compressor will be switched off in order to prevent a frozen evaporator.

A/C Refrigerant Pressure Sensor

The A/C refrigerant pressure sensor is a 3-wire piezoelectric pressure transducer. The 5 V reference voltage, low reference, and signal circuits enable the sensor to operate. The A/C pressure signal can be between 0.2–4.8 V. When the A/C refrigerant pressure is low, the signal value is near 0 V. When the A/C refrigerant pressure is high, the signal value is near 5 V. The engine control module (ECM) converts the voltage signal to a pressure value. When pressure is too high or too low, the ECM will not allow the A/C compressor clutch to engage.

A/C Compressor

This A/C system uses a conventional clutch to engage and mechanically turn the compressor, and a variable displacement solenoid valve to alter the amount of displacement created by the turning of the compressor. The HVAC control module provides both a constant battery voltage and a pulse width modulated ground to the variable displacement solenoid valve. When the A/C switch is pressed, the HVAC control module grounds the variable displacement solenoid valve using a (PWM) signal in order to determine the amount of compressor displacement. The performance of the A/C compressor is regulated according to adjusted interior temperature.

Auxiliary Electric Heater (Diesel ONLY)

Models equipped with a diesel engine are also equipped with an auxiliary electric heater grid to provide faster cabin warm-ups in cold climates. The auxiliary heater grid is mounted in the low-center of the HVAC module, where heat is transferred from the grid to air which is directed to the floor outlet ducts.

The auxiliary heater is enabled only when the cabin temperature is set to MAX, the engine coolant temperature is less than 80°C (176°F), and the outside air temperature is below 12°C (54°F). When engine coolant temperature rises above 80°C (176°F), the temperature control is moved away from the MAX position, or the outside air temperature is above 12°C (54°F), the auxiliary electric heater is disabled, and cabin heat is managed only by the coolant-based heater core and temperature door position. If the auxiliary electric heater is activated and then turns off, it can actuate once again if the engine coolant temperature drops below 75°C (167°F), or the outside air temperature drops below 8°C (46°F).

The actual amount of heat output from the auxiliary electric heater can vary and is dependant upon internal overheating protection, battery state of charge, and other vehicle electrical load requirements.

Air Speed

The blower control switch is part of the HVAC controls. The selected value of the blower switch position is sent to the HVAC control module via LIN-Bus.

The HVAC control module provides a PWM signal to the blower motor control module in order to command the desired blower motor speed.

Air Delivery

The desired air distribution mode can be selected with the air distribution switches at the HVAC controls. The HVAC controls delivers the values to the HVAC control module via LIN-Bus. The HVAC control module controls the air distribution actuator so that it drives the flap to the calculated position. Depending on the position of the flap, air is distributed through various ducts leading to the outlets in the dash. Turning the mode flap to the defrost position, the HVAC control module will move the recirculation actuator to outside air, reducing window fogging. When defrost is selected, the blower motor will be activated, regardless of the coolant temperature. The HVAC control module enables a high volume of air delivered to the front defrost vents. A/C is available in all modes.

The rear window defogger does not affect the HVAC system.

Heating and A/C Operation

The purpose of the heating and A/C system is to provide heated and cooled air to the interior of the vehicle. The A/C system will also remove humidity from the interior and reduce windshield fogging. Regardless of the temperature setting, the following can affect the rate that the HVAC system can achieve the desired temperature:

- Recirculation actuator setting
- Difference between inside and desired temperature
- Blower motor speed setting
- Mode setting

This vehicle may be equipped with a low voltage positive temperature coefficient cabin air heater. This is an electrical grid heater located in the HVAC case consisting of three 330 W stages used to heat the passenger compartment under cold conditions. When max temperature is selected and the engine coolant has not yet reached a sufficient temperature, the cabin air heater will be cycled on by the HVAC control module. The HVAC control module will monitor conditions in order to determine when to reduce or turn off the electrical cabin air heater.

When the A/C switch is pressed, the HVAC controls sends a signal to the HVAC control module via LIN-Bus. The HVAC control module evaluates this signal and sends an A/C request signal to the ECM via CAN-Bus. The ECM checks all preconditions before releasing and if all conditions are met sends a release signal back to the HVAC control module.

The following conditions must be met in order to activate the A/C compressor:

- Battery voltage is between 9–18 V
- Engine coolant temperature is less than 124°C (255°F)
- Engine speed is greater than 600 RPM
- Engine speed is less than 5 500 RPM
- A/C high side pressure is between 269–2 929 kPa (39–425 PSI)
- Throttle position is less than 100%
- Evaporator temperature is greater than 3°C (38°F)
- ECM does not detect excessive torque load
- ECM does not detect insufficient idle quality
- The ambient temperature is above 1°C (34°F)

The A/C high side pressure sensor information is used by the ECM to determine the following:

- The A/C high side pressure
- An A/C system load on the engine
- An immoderate A/C high side pressure
- The heat load at the A/C condenser

The air streams into the passenger compartment through the heater core and the evaporator core. The air temperature actuator drives the mixed air flap to determine the path of the incoming air. If the interior temperature should be increased, the mixed air flap is put into the position in which more air streams through the heater core. If the interior temperature should be decreased, the mixed air flap is put into the position in which more air streams through the evaporator core.

Recirculation Operation

The recirculation switch is integrated into the HVAC controls. The selected recirculation switch position is sent to the HVAC control module via LIN-Bus. The HVAC control module controls the air intake through the air inlet actuator and recirculation actuator. In the recirculation mode the air inlet flap closes and the recirculation flap opens in order to circulate the air within the vehicle. In fresh air mode the air inlet flap opens and the recirculation flap is closed again in order to route outside air into the vehicle. Recirculation is only available if the defrost mode is not active. When the defrost mode is active, the recirculation actuator opens the recirculation flap and the air inlet actuator opens the air inlet flap and outside air is circulated to the windshield to reduce fogging.

Engine Coolant

Engine coolant is the essential element of the heating system. The thermostat controls the normal engine operating coolant temperature. The thermostat also creates a restriction for the cooling system that promotes a positive coolant flow and helps prevent cavitation.

Coolant enters the heater core through the inlet heater hose, in a pressurized state. The heater core is located inside the HVAC module. The ambient air drawn through the HVAC module absorbs the heat of the coolant flowing through the heater core. Heated air is distributed to the passenger compartment, through the HVAC module, for passenger comfort. Opening or closing the air temperature flap controls the amount of heat delivered to the passenger compartment. The coolant exits the heater core through the return heater hose and recirculates back to the engine cooling system.

A/C Cycle

Refrigerant is the key element in an air conditioning system. R-134a is presently the only Environmental Protection Agency approved refrigerant for automotive use. R-134a is a very low temperature gas that can transfer the undesirable heat and moisture from the passenger compartment to the outside air.

The compressor builds pressure on the vapor refrigerant. Compressing the refrigerant also adds heat to the refrigerant. The refrigerant is discharged from the compressor, through the discharge hose, and forced to flow to the condenser and then through the balance of the A/C system. The A/C system is mechanically protected with the use of a high pressure relief valve. If the A/C refrigerant pressure sensor fails or if the refrigerant system becomes restricted and refrigerant pressure continued to rise, the high pressure relief will pop open and release refrigerant from the system.

Compressed refrigerant enters the condenser in a high temperature, high pressure vapor state. As the refrigerant flows through the condenser, the heat of the refrigerant is transferred to the ambient air passing through the condenser. Cooling the refrigerant causes the refrigerant to condense and change from a vapor to a liquid state.

The condenser is located in front of the radiator for maximum heat transfer. The condenser is made of aluminum tubing and aluminum cooling fins, which allows rapid heat transfer for the refrigerant. The semi-cooled liquid refrigerant exits the condenser and flows to the Receiver/Dehydrator(R/D).

The R/D contains desiccant that absorbs moisture that may be in the refrigerant system. The R/D also acts as a storage vessel to ensure that a steady flow of liquid reaches the Thermal Expansion Valve. The refrigerant exits the R/D and flows through the liquid line to the Thermal Expansion Valve.

The Thermal Expansion Valve is located at the front of dash and attaches to the evaporator inlet and outlet pipes. The Thermal Expansion Valve is the dividing point for the high and the low pressure sides of the A/C system. As the refrigerant passes through the Thermal Expansion Valve, the pressure on the refrigerant is lowered. The Thermal Expansion Valve also meters the amount of liquid refrigerant that can flow into the evaporator.

Refrigerant exiting the Thermal Expansion Valve flows into the evaporator core in a low pressure, liquid state. Ambient air is drawn through the HVAC module and passes through the evaporator core. Warm and moist air will cause the liquid refrigerant boil inside of the evaporator core. The boiling refrigerant absorbs heat from the ambient air and draws moisture onto the evaporator. The refrigerant exits the evaporator through the suction line and back to the A/C compressor, in a vapor state, and completing the A/C cycle of heat removal. At the A/C compressor, the refrigerant is compressed again and the cycle of heat removal is repeated.

The conditioned air is distributed through the HVAC module for passenger comfort. The heat and moisture removed from the passenger compartment will also change form, or condense, and is discharged from the HVAC module as water.

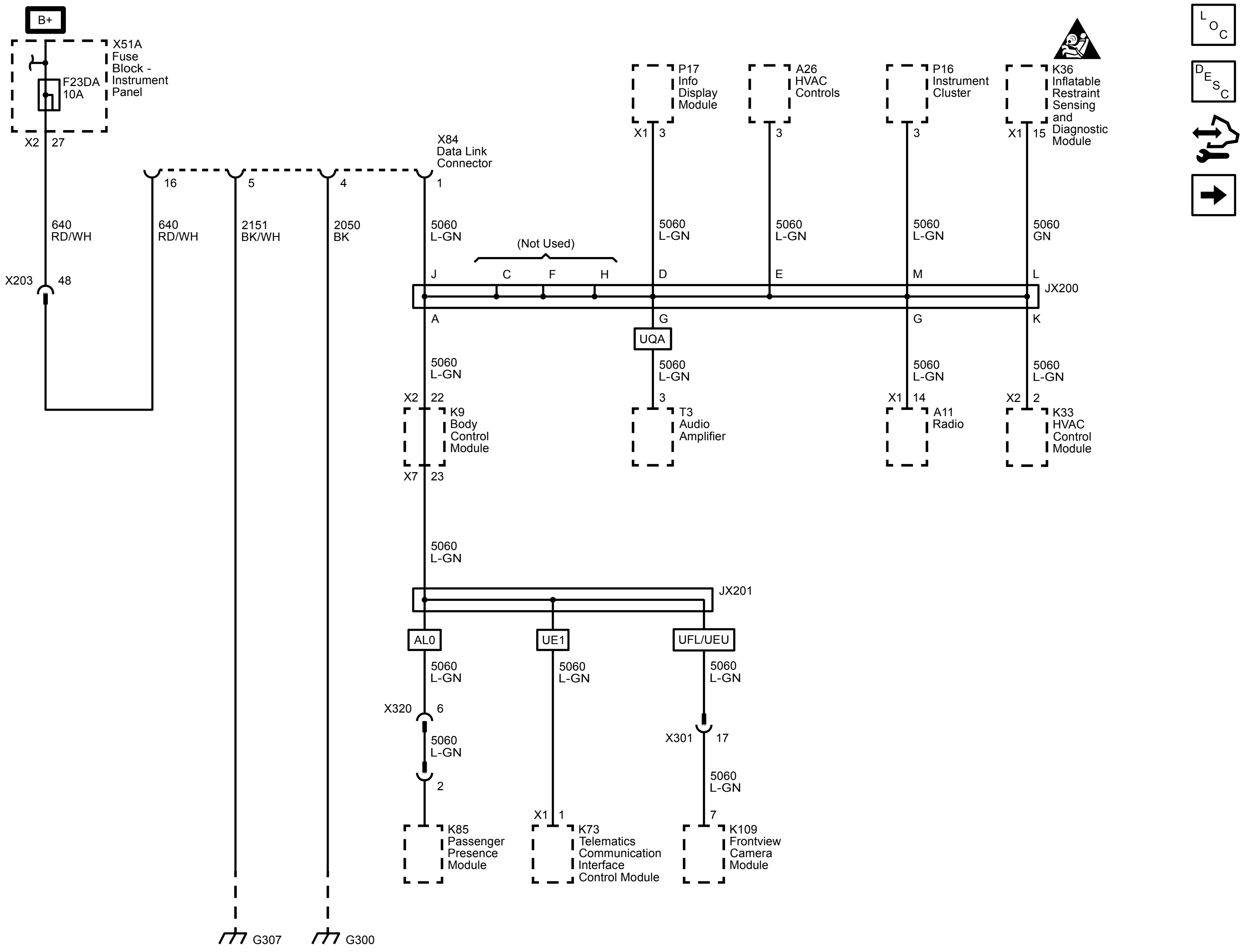
Power and Signal Distribution

Data Communications

Schematic and Routing Diagrams

Data Communication Schematics

Power, Ground, and Low Speed GMLAN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RD/WH
X203 48
16
640
RD/WH
5
2151
BK/WH
4
2050
BK
X84
Data Link
Connector
1
5060
L-GN
(Not Used)
J C F H D E M L
JX200
A G G K
UQA
P17
Info
Display
Module
X1 3
A26
HVAC
Controls
3
P16
Instrument
Cluster
3
K36
Inflatable
Restraint
Sensing
and
Diagnostic
Module
X1 15
5060
GN
5060
L-GN
X2 22
K9
Body
Control
Module
X7 23
3
T3
Audio
Amplifier
X1 14
A11
Radio
X2 2
K33
HVAC
Control
Module
JX201
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UE1
UFL/UEU
X320 6
2
K85
Passenger
Presence
Module
X1 1
K73
Telematics
Communication
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Control Module
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Camera
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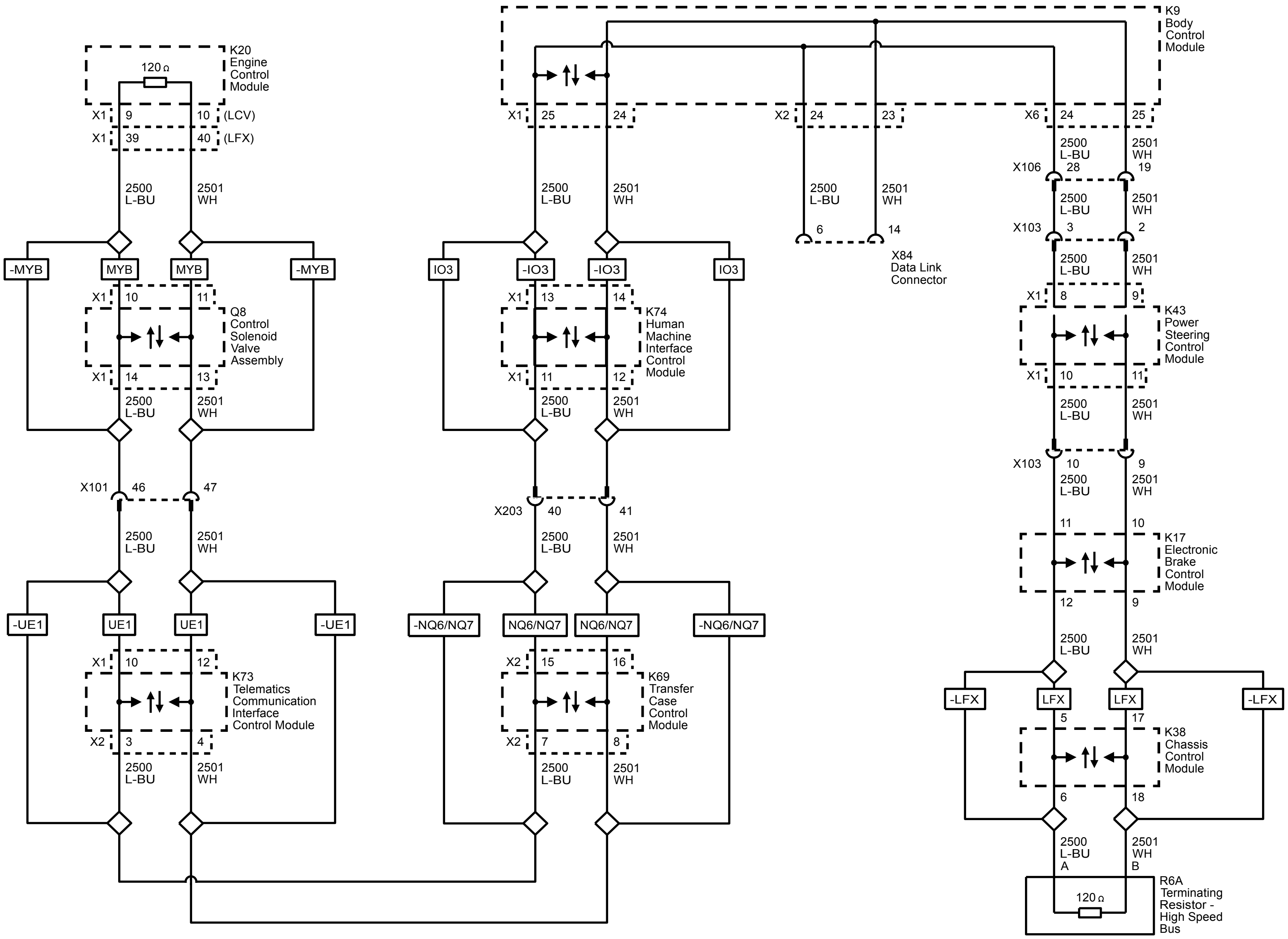
G307
G300
L O C
D E S C

High Speed GMLAN


K20 Engine Control Module
120 Ω
X1 9 10 (LCV)
X1 39 40 (LFX)
2500 L-BU
2501 WH
-MYB
MYB
MYB
-MYB
X1 10 11
Q8 Control Solenoid Valve Assembly
X1 14 13
2500 L-BU
2501 WH
X101 46 47
2500 L-BU
2501 WH
-UE1
UE1
UE1
-UE1
X1 10 12
K73 Telematics Communication Interface Control Module
X2 3 4
2500 L-BU
2501 WH
K9 Body Control Module
X1 25 24
X2 24 23
X6 24 25
2500 L-BU
2501 WH
2500 L-BU
2501 WH
6 14
X84 Data Link Connector
IO3
-IO3
-IO3
IO3
X1 13 14
K74 Human Machine Interface Control Module
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2500 L-BU
2501 WH
X203 40 41
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-NQ6/NQ7
NQ6/NQ7
NQ6/NQ7
-NQ6/NQ7
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2501 WH
2500 L-BU
2501 WH
X106 28 19
2500 L-BU
2501 WH
X103 3 2
2500 L-BU
2501 WH
X1 8 9
K43 Power Steering Control Module
X1 10 11
2500 L-BU
2501 WH
X103 10 9
2500 L-BU
2501 WH
11 10
K17 Electronic Brake Control Module
12 9
2500 L-BU
2501 WH
-LFX
LFX
LFX
-LFX
5 17
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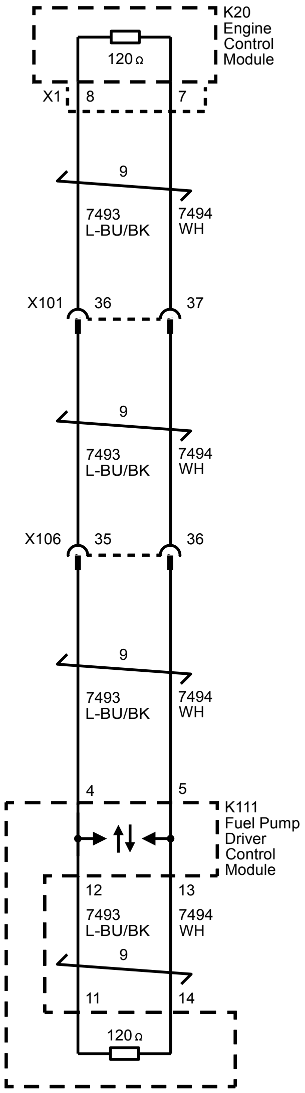
2500 L-BU A
2501 WH B
120 Ω
R6A Terminating Resistor - High Speed Bus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Engine
Control
Module
120 Ω
X1
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L-BU/BK
7494
WH
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7493
L-BU/BK
7494
WH
X106
35
36
9
7493
L-BU/BK
7494
WH
4
5
K111
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Driver
Control
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7493
L-BU/BK
7494
WH
9
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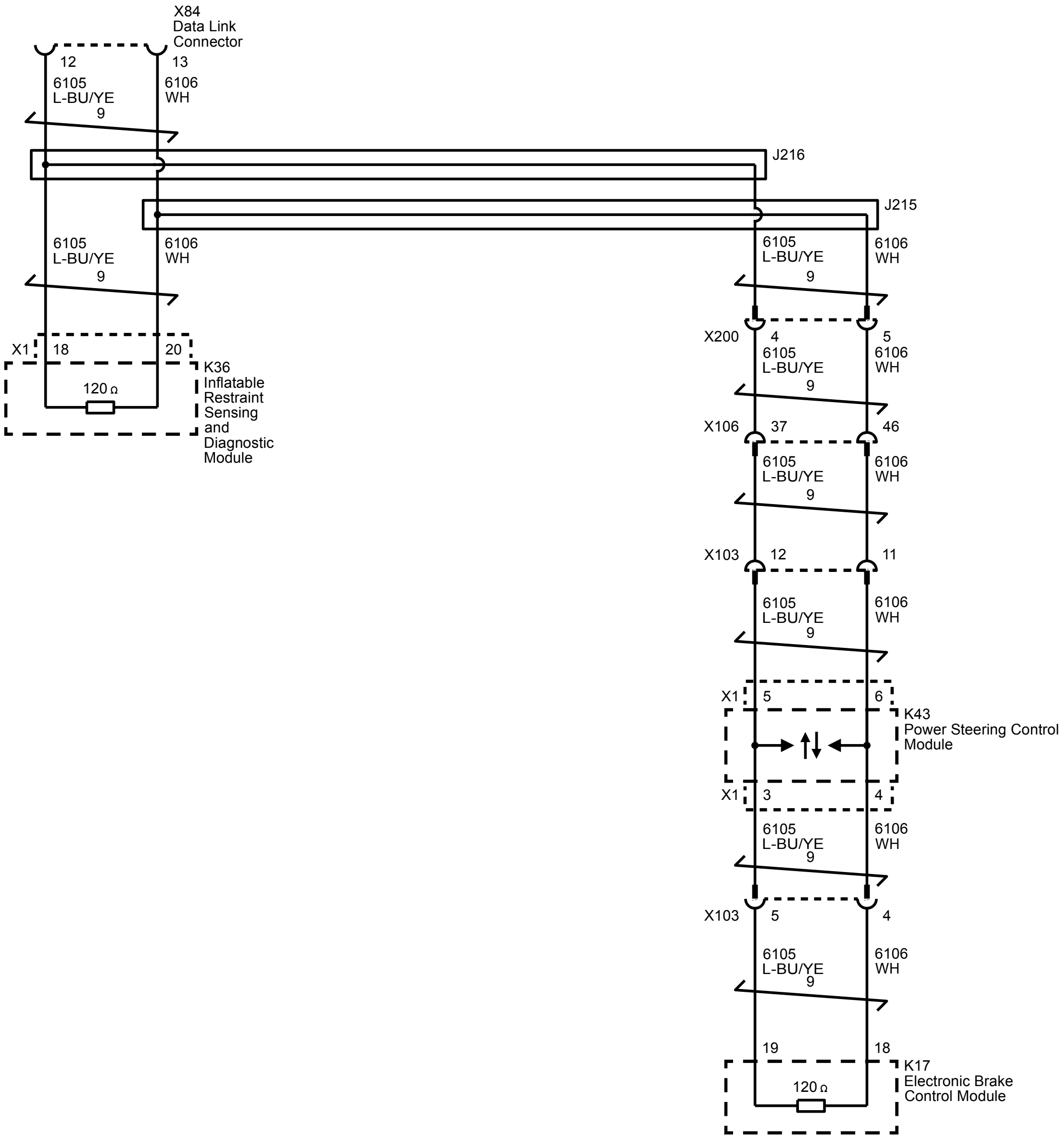
14
120 Ω

Chassis High Speed GMLAN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WH
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WH
X1
18
20
K36
Inflatable
Restraint
Sensing
and
Diagnostic
Module
120 Ω
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L-BU/YE
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6106
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X200
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5
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L-BU/YE
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WH
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K43
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6106
WH
X103
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L-BU/YE
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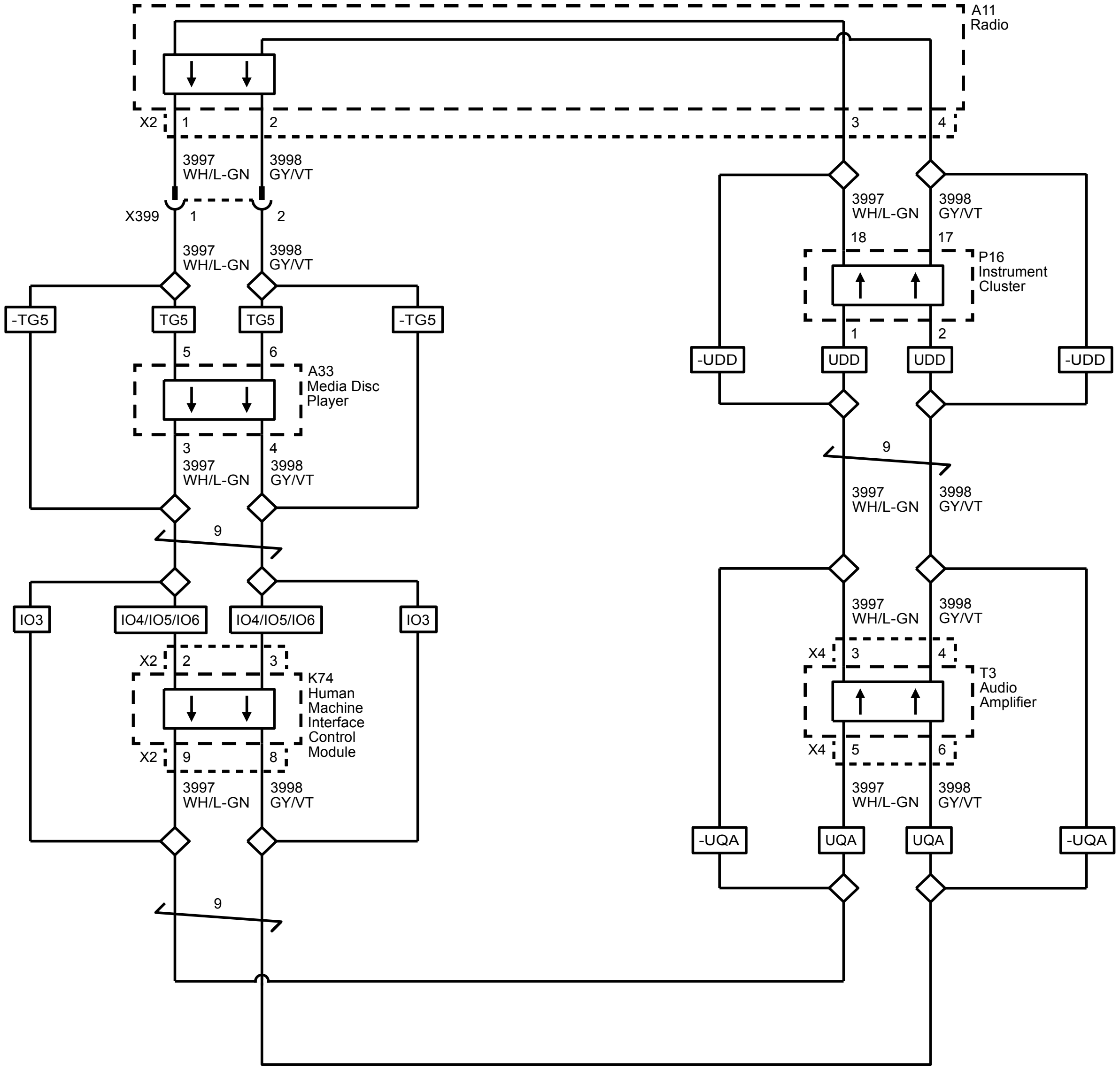
6106
WH
19
18
K17
Electronic Brake
Control Module
120 Ω

MOST Communication Bus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TG5
-TG5
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WH/L-GN
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GY/VT
9
IO3
IO4/IO5/IO6
IO4/IO5/IO6
IO3
X2
2
3
K74
Human
Machine
Interface
Control
Module
X2
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3997
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P16
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-UDD
UDD
UDD
-UDD
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WH/L-GN
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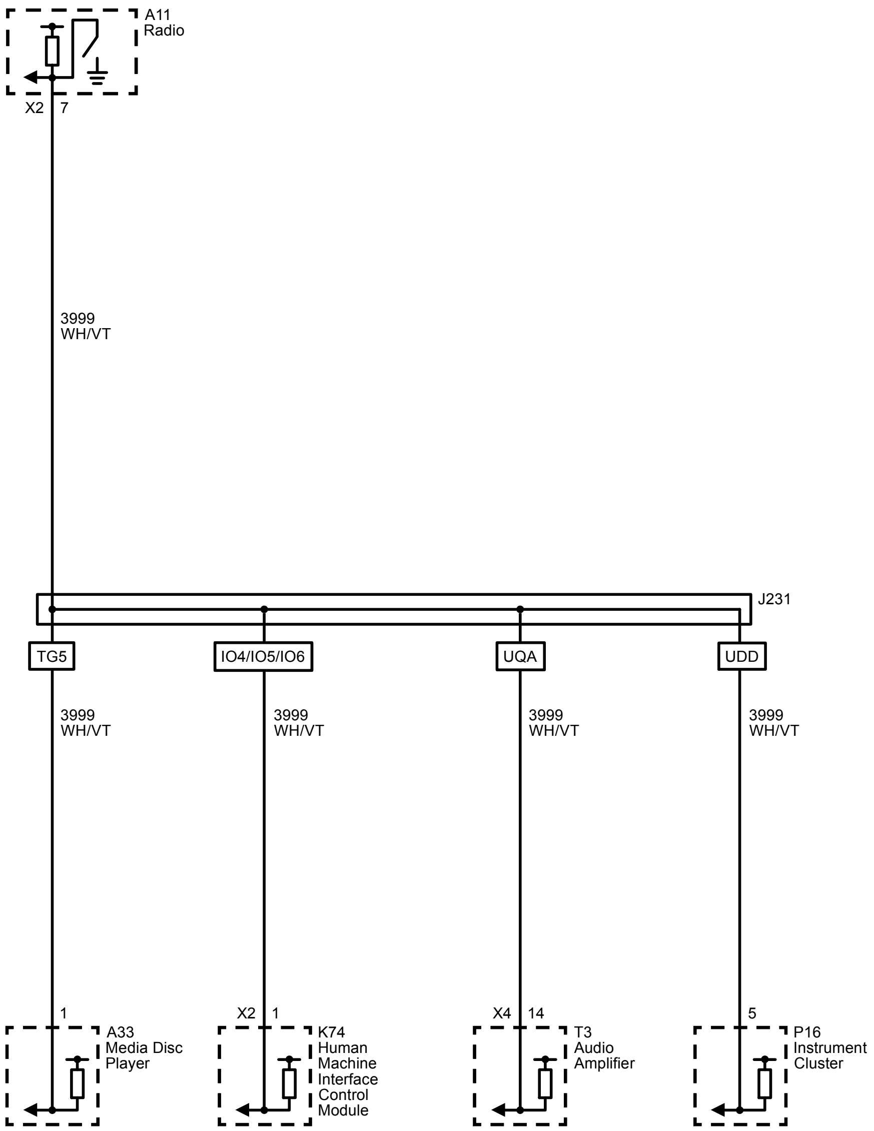
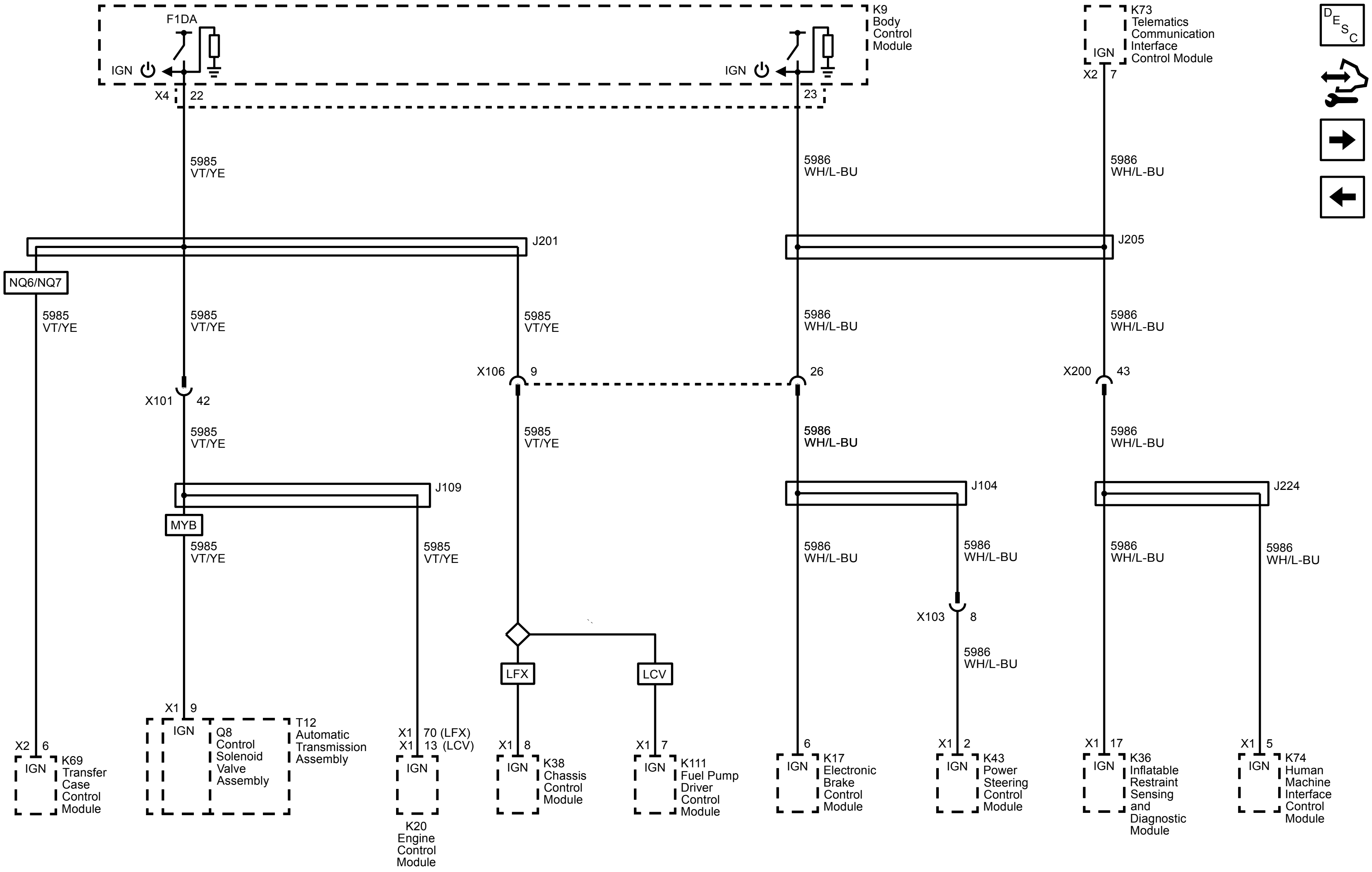
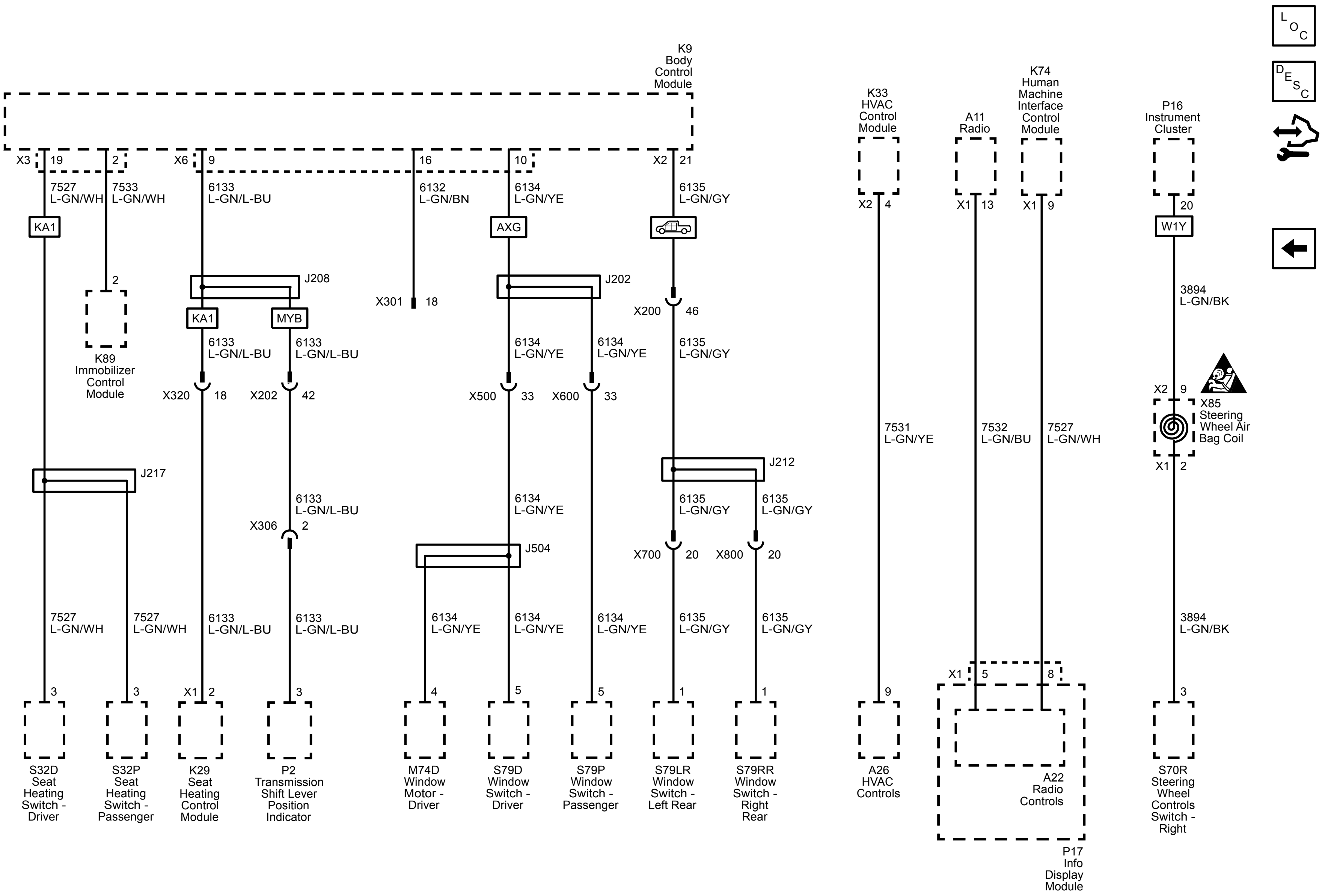
GY/VT
X4
3
4
T3
Audio
Amplifier
X4
5
6
3997
WH/L-GN
3998
GY/VT
-UQA
UQA
UQA
-UQA

MOST Communication Enable

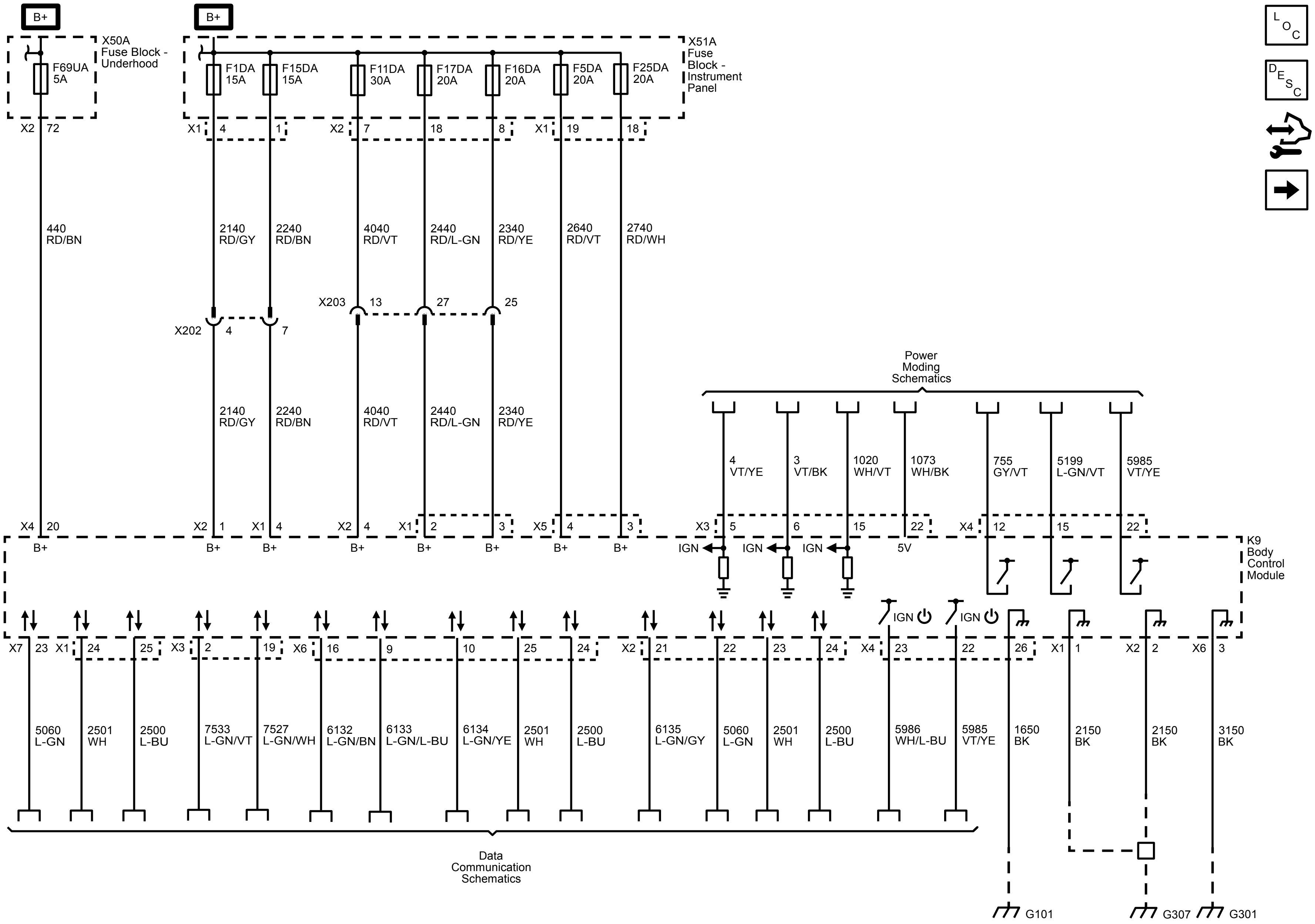

A11
Radio
X2 7
3999
WH/VT
J231
TG5
IO4/IO5/IO6
UQA
UDD
3999
WH/VT
3999
WH/VT
3999
WH/VT
3999
WH/VT
1
A33
Media Disc
Player
X2 1
K74
Human
Machine
Interface
Control
Module
X4 14
T3
Audio
Amplifier
5
P16
Instrument
Cluster

Accessory Wakeup and Communications Enable

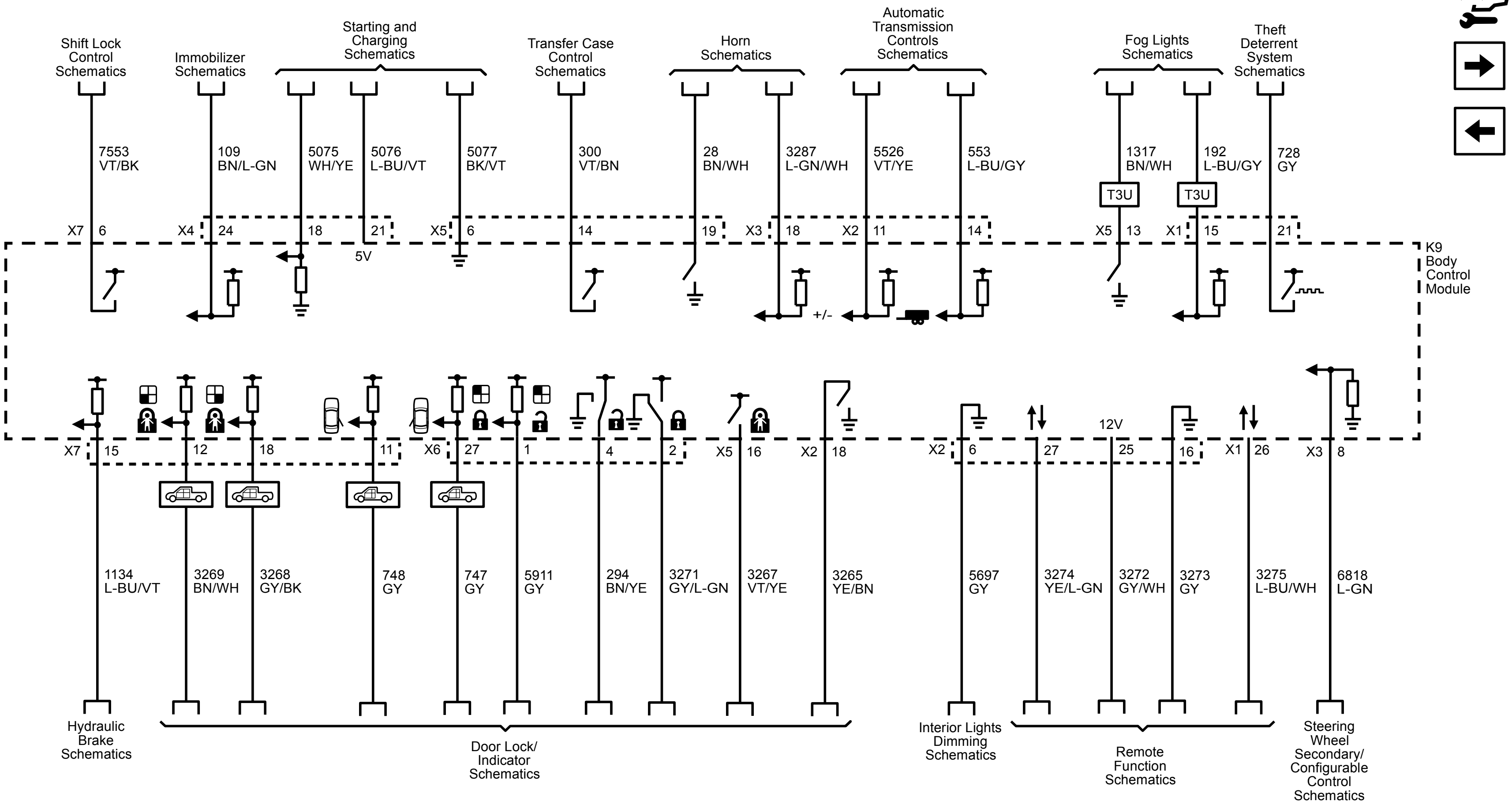

F1DA
IGN
X4
22
IGN
23
K9
Body
Control
Module
K73
Telematics
Communication
Interface
Control Module
IGN
X2
7
5985
VT/YE
5986
WH/L-BU
5986
WH/L-BU
J201
J205
NQ6/NQ7
5985
VT/YE
5985
VT/YE
5985
VT/YE
5986
WH/L-BU
5986
WH/L-BU
X106
9
26
X200
43
X101
42
5985
VT/YE
5985
VT/YE
5986
WH/L-BU
5986
WH/L-BU
J109
J104
J224
MYB
5985
VT/YE
5985
VT/YE
5986
WH/L-BU
5986
WH/L-BU
5986
WH/L-BU
5986
WH/L-BU
X103
8
5986
WH/L-BU
LFX
LCV
X1
9
IGN
Q8
Control
Solenoid
Valve
Assembly
T12
Automatic
Transmission
Assembly
X2
6
IGN
K69
Transfer
Case
Control
Module
X1
70 (LFX)
X1
13 (LCV)
IGN
K20
Engine
Control
Module
X1
8
IGN
K38
Chassis
Control
Module
X1
7
IGN
K111
Fuel Pump
Driver
Control
Module
6
IGN
K17
Electronic
Brake
Control
Module
X1
2
IGN
K43
Power
Steering
Control
Module
X1
17
IGN
K36
Inflatable
Restraint
Sensing
and
Diagnostic
Module
X1
5
IGN
K74
Human
Machine
Interface
Control
Module


K9 Body Control Module
X3 19
2
X6 9
16
10
X2 21
7527 L-GN/WH
7533 L-GN/WH
6133 L-GN/L-BU
6132 L-GN/BN
6134 L-GN/YE
6135 L-GN/GY
KA1
AXG
J208
J202
X301 18
X200 46
KA1
MYB
K89 Immobilizer Control Module
X320 18
X202 42
X500 33
X600 33
J217
J212
X306 2
J504
X700 20
X800 20
3
X1 2
4
5
1
S32D Seat Heating Switch - Driver
S32P Seat Heating Switch - Passenger
K29 Seat Heating Control Module
P2 Transmission Shift Lever Position Indicator
M74D Window Motor - Driver
S79D Window Switch - Driver
S79P Window Switch - Passenger
S79LR Window Switch - Left Rear
S79RR Window Switch - Right Rear
K33 HVAC Control Module
X2 4
7531 L-GN/YE
9
A26 HVAC Controls
A11 Radio
X1 13
7532 L-GN/BU
K74 Human Machine Interface Control Module
X1 9
7527 L-GN/WH
X1 5 8
A22 Radio Controls
P17 Info Display Module
P16 Instrument Cluster
20
W1Y
3894 L-GN/BK
X2 9
X85 Steering Wheel Air Bag Coil
X1 2
3894 L-GN/BK
3
S70R Steering Wheel Controls Switch - Right
LOC
DESC

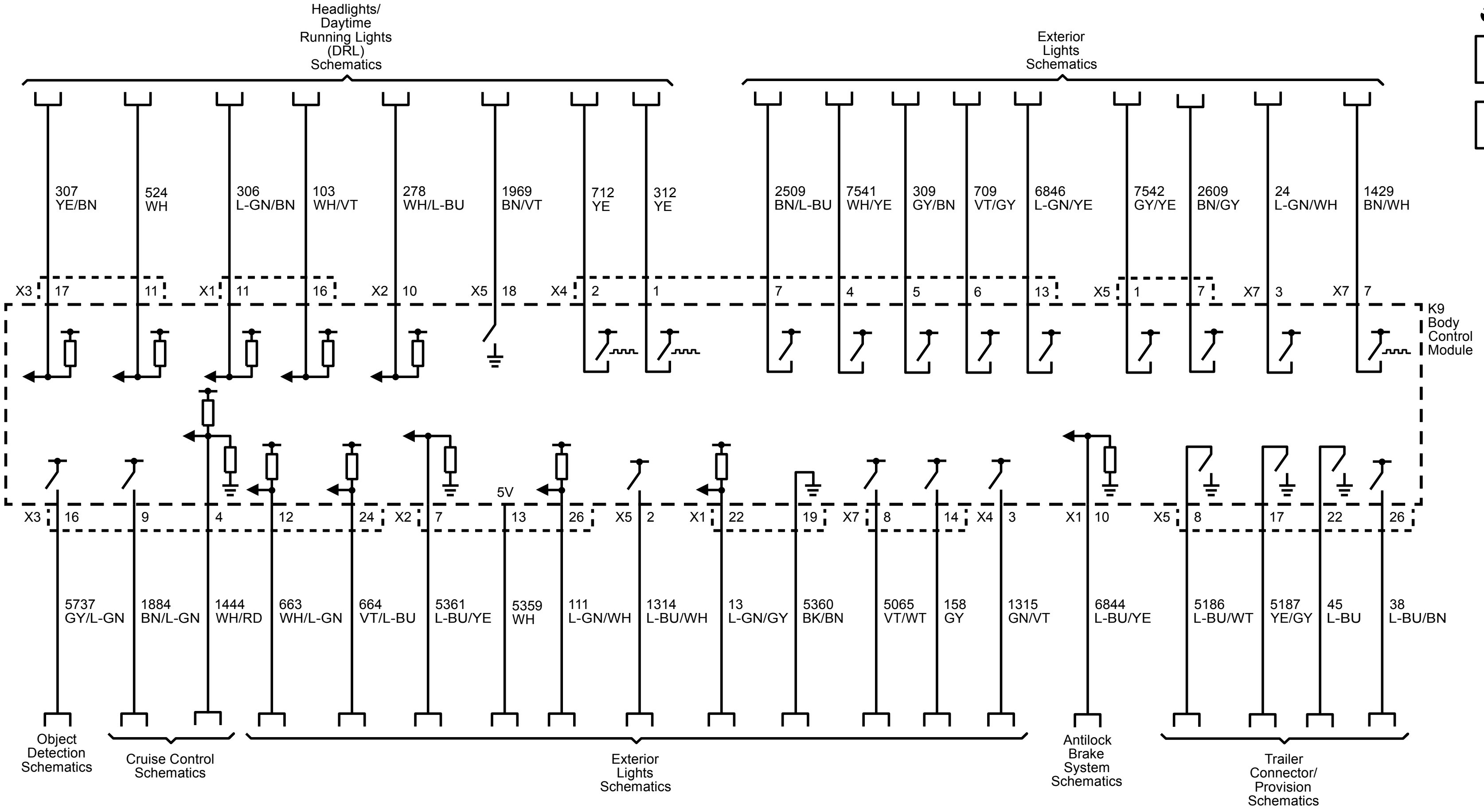
Power, Ground, and Serial Data


B+
X50A
Fuse Block - Underhood
F69UA
5A
X2 72
440
RD/BN
B+
F1DA
15A
F15DA
15A
F11DA
30A
F17DA
20A
F16DA
20A
F5DA
20A
F25DA
20A
X51A
Fuse Block - Instrument Panel
X1 4 1
X2 7 18 8
X1 19 18
2140
RD/GY
2240
RD/BN
4040
RD/VT
2440
RD/L-GN
2340
RD/YE
2640
RD/VT
2740
RD/WH
X202 4 7
X203 13 27 25
2140
RD/GY
2240
RD/BN
4040
RD/VT
2440
RD/L-GN
2340
RD/YE
Power Moding Schematics
4
VT/YE
3
VT/BK
1020
WH/VT
1073
WH/BK
755
GY/VT
5199
L-GN/VT
5985
VT/YE
X4 20
X2 1
X1 4
X2 4
X1 2 3
X5 4 3
X3 5 6 15 22
X4 12 15 22
B+
B+
B+
B+
B+
B+
B+
B+
IGN
IGN
IGN
5V
K9
Body Control Module
IGN
IGN
X7 23
X1 24 25
X3 2 19
X6 16 9 10 25 24
X2 21 22 23 24
X4 23 22 26
X1 1
X2 2
X6 3
5060
L-GN
2501
WH
2500
L-BU
7533
L-GN/VT
7527
L-GN/WH
6132
L-GN/BN
6133
L-GN/L-BU
6134
L-GN/YE
2501
WH
2500
L-BU
6135
L-GN/GY
5060
L-GN
2501
WH
2500
L-BU
5986
WH/L-BU
5985
VT/YE
1650
BK
2150
BK
2150
BK
3150
BK
Data Communication Schematics
G101
G307
G301

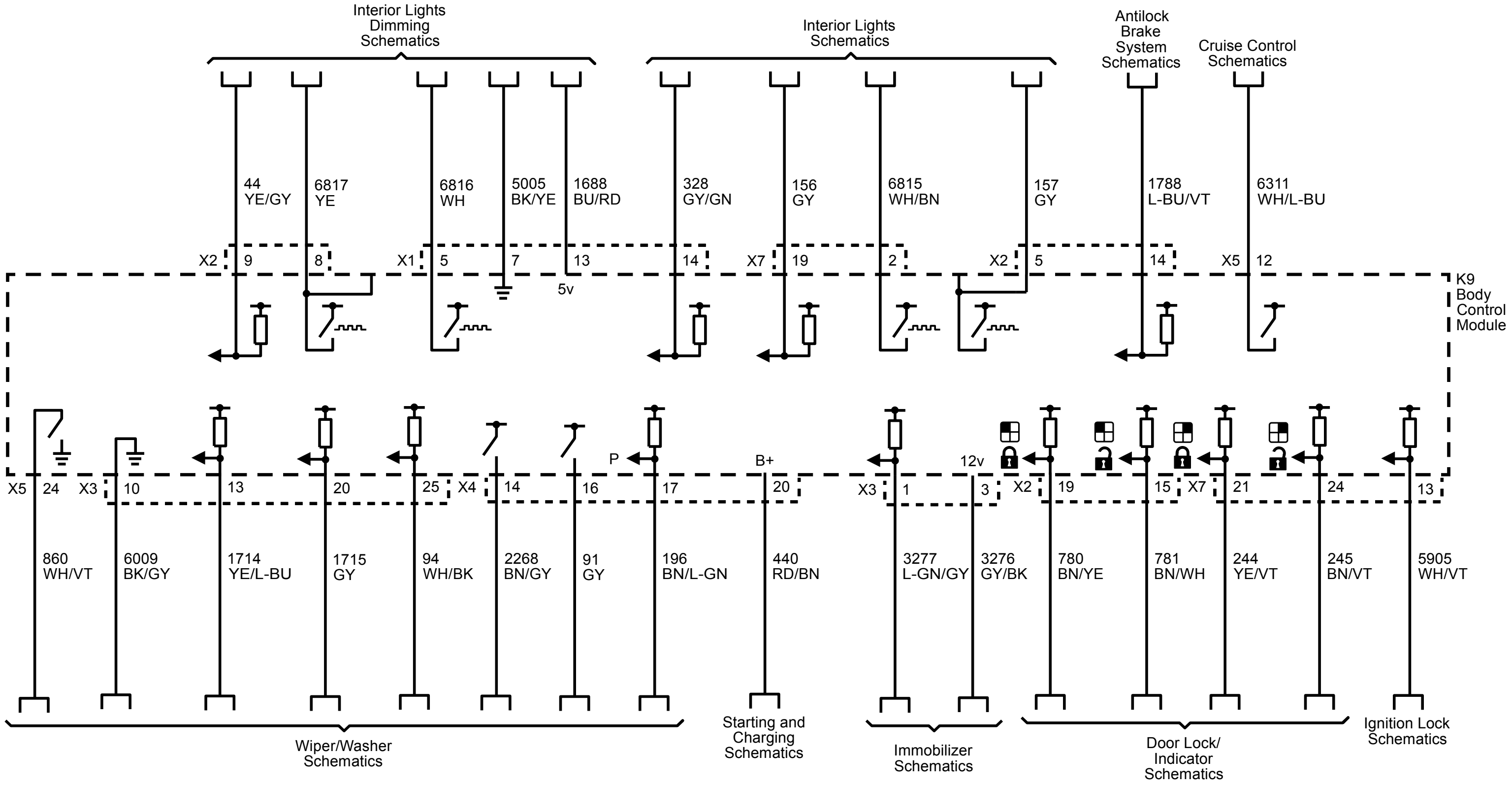
Subsystem References (1 of 3)


Shift Lock Control Schematics
Immobilizer Schematics
Starting and Charging Schematics
Transfer Case Control Schematics
Horn Schematics
Automatic Transmission Controls Schematics
Fog Lights Schematics
Theft Deterrent System Schematics
7553 VT/BK
109 BN/L-GN
5075 WH/YE
5076 L-BU/VT
5077 BK/VT
300 VT/BN
28 BN/WH
3287 L-GN/WH
5526 VT/YE
553 L-BU/GY
1317 BN/WH
192 L-BU/GY
728 GY
T3U
T3U
X7 6
X4 24
18
21
X5 6
14
19
X3 18
X2 11
14
X5 13
X1 15
21
5V
+/-
K9 Body Control Module
X7 15
12
18
11
X6 27
1
4
2
X5 16
X2 18
X2 6
27
25
12V
16
X1 26
X3 8
1134 L-BU/VT
3269 BN/WH
3268 GY/BK
748 GY
747 GY
5911 GY
294 BN/YE
3271 GY/L-GN
3267 VT/YE
3265 YE/BN
5697 GY
3274 YE/L-GN
3272 GY/WH
3273 GY
3275 L-BU/WH
6818 L-GN
Hydraulic Brake Schematics
Door Lock/ Indicator Schematics
Interior Lights Dimming Schematics
Remote Function Schematics
Steering Wheel Secondary/ Configurable Control Schematics

Subsystem References (2 of 3)


Headlights/ Daytime Running Lights (DRL) Schematics
Exterior Lights Schematics
307 YE/BN
524 WH
306 L-GN/BN
103 WH/VT
278 WH/L-BU
1969 BN/VT
712 YE
312 YE
2509 BN/L-BU
7541 WH/YE
309 GY/BN
709 VT/GY
6846 L-GN/YE
7542 GY/YE
2609 BN/GY
24 L-GN/WH
1429 BN/WH
X3 17 11
X1 11 16
X2 10
X5 18
X4 2 1 7 4 5 6 13
X5 1 7
X7 3
X7 7
K9 Body Control Module
5V
X3 16 9 4 12 24
X2 7 13 26
X5 2
X1 22 19
X7 8 14
X4 3
X1 10
X5 8 17 22 26
5737 GY/L-GN
1884 BN/L-GN
1444 WH/RD
663 WH/L-GN
664 VT/L-BU
5361 L-BU/YE
5359 WH
111 L-GN/WH
1314 L-BU/WH
13 L-GN/GY
5360 BK/BN
5065 VT/WT
158 GY
1315 GN/VT
6844 L-BU/YE
5186 L-BU/WT
5187 YE/GY
45 L-BU
38 L-BU/BN
Object Detection Schematics
Cruise Control Schematics
Exterior Lights Schematics
Antilock Brake System Schematics
Trailer Connector/ Provision Schematics

Subsystem References (3 of 3)


Interior Lights Dimming Schematics
Interior Lights Schematics
Antilock Brake System Schematics
Cruise Control Schematics
44 YE/GY
6817 YE
6816 WH
5005 BK/YE
1688 BU/RD
328 GY/GN
156 GY
6815 WH/BN
157 GY
1788 L-BU/VT
6311 WH/L-BU
X2
9
8
X1
5
7
13
5v
14
X7
19
2
X2
5
14
X5
12
K9 Body Control Module
P
B+
12v
X5
24
X3
10
13
20
25
X4
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16
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X3
1
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X2
19
15
X7
21
24
13
860 WH/VT
6009 BK/GY
1714 YE/L-BU
1715 GY
94 WH/BK
2268 BN/GY
91 GY
196 BN/L-GN
440 RD/BN
3277 L-GN/GY
3276 GY/BK
780 BN/YE
781 BN/WH
244 YE/VT
245 BN/VT
5905 WH/VT
Wiper/Washer Schematics
Starting and Charging Schematics
Immobilizer Schematics
Door Lock/ Indicator Schematics
Ignition Lock Schematics

Description and Operation

Body Control System Description and Operation

The body control system consists of the body control module (BCM), communications, and various input and outputs. Some inputs, outputs and messages require other modules to interact with the BCM. The BCM also has discrete input and output terminals to control the vehicle's body functions. The BCM is wired to the high speed GMLAN serial data bus, low speed GMLAN serial data bus and Multiple LIN buses and acts as a gateway between them.

Power Mode Master

This vehicle body control module (BCM) functions as the power mode master (PMM). The ignition switch is a low current switch with multiple discrete ignition switch signals to the PMM for determining the power mode that will be sent over the serial data circuits to the other modules that need this information; the PMM will activate relays and other direct outputs of the PMM as needed. Refer to Power Mode Description and Operation for a complete description of power mode functions.

Gateway

The body control module (BCM) in this vehicle functions as a gateway or translator. The purpose of the gateway is to translate serial data messages between the GMLAN high speed bus and the GMLAN low speed bus for communication between the various modules. The gateway will interact with each network according to that network's transmission protocol.

All communication between the BCM and a scan tool is on the high speed GMLAN serial data circuits. A lost communication DTC typically is set in modules other than the module with a communication failure.

Body Control

The various body control module (BCM) input and output circuits are illustrated in the corresponding functional areas on the BCM electrical schematics. Refer to the Body Control System Schematics for more detailed information.

Data Link Communications Description and Operation

Note: This is an overview of different serial data buses used by GM devices to communicate with each others. Use Data Communication Schematics to find out which serial data buses are configured for a specific vehicle.

Circuit Description

There are many components in a vehicle that rely on information from other sources, transmit information to other sources, or both. Serial data communication networks provide a reliable, cost effective, way for various components of the vehicle to “talk” to one another and share information.

GM uses a number of different communication buses to insure the timely and efficient exchange of information between devices. When compared to each other, some of these buses are different in nature as far as speed, signal characteristics, and behavior. An example of this is the High Speed GMLAN and Low Speed GMLAN buses.

On the other hand, when other buses are compared to each other they have similar characteristics and simply operate in parallel. In this case they are used to group together components which have high interaction. Examples are the High Speed GMLAN, Powertrain Expansion, and Chassis Expansion buses. This allows them to communicate with each other on a bus with reduced message congestion insuring faster and the more timely exchange of information than if all vehicle devices were on a single bus.

The majority of information that exists within a given network generally stays local; however some information will have to be shared on other networks. Control modules designated as Gateway’s perform the function of transferring information between the various buses. A Gateway module is connected to at least 2 buses and will interact with each network according to its message strategy and transmission models.

GMLAN provides the capability for a receiving device to monitor message transmissions from other devices in order to determine if messages of interest are not being received. The primary purpose is to allow reasonable default values to be substituted for the information no longer being received. Additionally, a device may set a Diagnostic Trouble Code to indicate that the device it is expecting information from is no longer communicating.

High Speed GMLAN Circuit Description

A High Speed GMLAN Bus is used where data needs to be exchanged at a high enough rate to minimize the delay between the occurrence of a change in sensor value and the reception of this information by a control device using the information to adjust vehicle system performance.

The High Speed GMLAN serial data network consists of two twisted wires. One signal circuit is identified as GMLAN-High and the other signal circuit is identified as GMLAN-Low. At each end of the data bus there is a 120 Ω termination resistor between the GMLAN-High and GMLAN-Low circuits.

Data symbols (1’s and 0’s) are transmitted sequentially at a rate of 500 Kbit/s. The data to be transmitted over the bus is represented by the voltage difference between the GMLAN-High signal voltage and the GMLAN-Low signal voltage.

When the two wire bus is at rest the GMLAN-High and GMLAN-Low signal circuits are not being driven and this represents a logic “1”. In this state both signal circuits are at the same voltage of 2.5 V. The differential voltage is approximately 0 V.

When a logic “0” is to be transmitted, the GMLAN-High signal circuit is driven higher to about 3.5 V and the GMLAN-Low circuit is driven lower to about 1.5 V. The differential voltage becomes approximately 2.0 (+/- 0.5) V.

Devices on High Speed GMLAN Bus enable or disable communication based on the voltage level of the communication enable circuit. When the circuit voltage is high (around 12 V), communications are enabled. When the circuit is low, communications are disabled.

Chassis High Speed GMLAN Circuit Description

The GMLAN Chassis Expansion Bus is basically a copy of the High Speed GMLAN Bus except that its use is reserved for chassis components. This implementation splits message congestion between two parallel buses helping to insure timely message transmission and reception. Sometimes communication is required between the Chassis Expansion Bus and the primary High Speed GMLAN Bus. This is accomplished by using the K17 Electronic Brake Control Module (EBCM) as the Gateway module. Since the High Speed GMLAN Chassis Expansion Bus and primary High Speed GMLAN Bus operate in the same manner, the diagnostics for each are similar.

Powertrain High Speed GMLAN Circuit Description

The GMLAN Powertrain Expansion Bus is basically a copy of the High Speed GMLAN Bus except that its use is reserved for Powertrain components. The bus is optional based upon feature content. Sometimes communication is required between the Powertrain Expansion Bus and the primary High Speed GMLAN Bus. This is accomplished by using the K20 Engine Control Module (ECM) as the Gateway module. Since the High Speed GMLAN Powertrain Expansion Bus and the primary High Speed GMLAN Bus operate in the same manner, the diagnostics for each are similar.

Media Oriented Systems Transport (MOST) Circuit Description

The MOST Infotainment network is a dedicated high speed multimedia streaming data bus independent from GMLAN. The MOST bus will be configured in a physical hardwired loop with each device within the bus sends and receives data on an assigned MOST addresses in a set order. Each device on the MOST bus will be required to have twisted pair copper wires (2 transmit TX, 2 receive RX, and 1 electronic control line which is a 12 V wakeup signal line). The A11 Radio is the MOST Master and will monitor the bus for vehicle configuration, Infotainment data messages and errors on the bus. The MOST initialization consists of a short 100 ms low voltage pulse on the electronic control line (or MOST control line) connected to all devices contained on the MOST ring. This wakeup message once received by each device, will first respond with a generic device response. Once these initial responses on the MOST bus are reported successfully without error to the A11 Radio, the second data request will record the MOST device addresses, their functionality requirements and capabilities within. The A11 Radio will learn this information and also record the address node sequence on the MOST bus at this point. This node address list will now be stored within the A11 Radio as the MOST bus configuration (called “Last Working MOST ID of Node 1 – 9” on scan tool data display).

When MOST receive, transmit, or control line faults are detected, transmit/receive messages will not received as expected from the wakeup request. The A11 Radio and the K74 Human Machine Interface Control Module will then perform diagnostics to isolate these MOST faults. If the MOST control line is shorted low to 0 V for excess amount of time, the A11 Radio will set a U2098 DTC and K74 Human Machine Interface Control Module will set a U0029 02 DTC. At this point the MOST bus will be unable to communicate until the shorted MOST control line is repaired.

Once the shorted MOST control line diagnostics pass, the A11 Radio will attempt to resend the initial short pulse attempts up to 3 times on the MOST control line. If the expected responses are not received, the A11 Radio continues into a failure mode setting a U0028 DTC and will continue on to send one 300 ms long pulse, which will enable the furthest upstream transmitting device to become the surrogate MOST Master in this MOST fault/diagnostic mode. When the A11 Radio receives this new MOST Master identity, the surrogate MOST master device can be identified based on scan tool data parameter “Surrogate MOST Master Node Upstream Position”. The scan tool should be used to determine the MOST bus configuration and direction by utilizing the “Last Working MOST ID of Node 1 – 9” parameters from the A11 Radio data display. When a fault is present, it will indicate the newly enabled “Surrogate MOST Master Node Upstream Position” from the A11 Radio. This will assist in determining where the MOST bus/control is at fault. The MOST device upstream from the surrogate MOST master device, transmit, receive, or control lines will be the suspect areas for diagnostics at this point. These faults can be associated with any of the MOST transmit, receive, or control line twisted copper wires or possibly an internal device fault.

The K74 Human Machine Interface Control Module will set a U0029 00 DTC when it diagnoses a MOST bus not communicating properly after one attempt. When the DTC U0029 00 is set by the K74 Human Machine Interface Control Module without the corresponding DTC U0028 from the A11 Radio, it will be an indication of an intermittent wiring/device condition.

Low Speed GMLAN Circuit Description

Low Speed GMLAN Bus is used in applications where a high data rate is not required which allows for the use of less complex components. It is typically used for operator controlled functions where the response time requirements are slower than those required for dynamic vehicle control.

The Low Speed GMLAN Serial Data Network consists of a single wire, ground referenced bus with high side voltage drive. During on road vehicle operation data symbols (1’s and 0’s) are transmitted sequentially at the normal rate of 33.3 Kbit/s. For component programming only, a special high speed data mode of 83.3 Kbit/s may be used.

Unlike the high speed dual wire networks, the single wire low speed network does not use terminating resistors at either end of the network.

The data symbols to be transmitted over the bus are represented by different voltage signals on the bus. When the Low Speed GMLAN Bus is at rest and is not being driven, there is a low signal voltage of approximately 0.2 V. This represents a logic “1”. When a logic “0” is to be transmitted, the signal voltage is driven higher to around 4.0 V or higher.

Local Interconnect Network (LIN) Circuit Description

The Local Interconnect Network (LIN) Bus consists of a single wire with a transmission rate of 10.417 Kbit/s. This bus is used to exchange information between a master control module and other smart devices which provide supporting functionality. This type of configuration does not require the capacity or speed of either a High Speed GMLAN Bus or Low Speed GMLAN Bus and is thus relatively simpler.

The data symbols (1’s and 0’s) to be transmitted are represented by different voltage levels on the communication bus. When the LIN Bus is at rest and is not being driven, the signal is in a high voltage state of approximately Vbatt. This represents a logic “1”. When a logic “0” is to be transmitted, the signal voltage is driven low to about ground (0.0 V).

Data Link Connector (DLC)

The X84 Data Link Connector (DLC) is a standardized 16-cavity connector. Connector design and location is dictated by an industry wide standard, and is required to provide the following:

- Terminal 1 Low speed GMLAN communications terminal
- Terminal 2 Class 2 communications terminal
- Terminal 3 Mid speed GMLAN serial bus (+) terminal or Object high speed GMLAN serial bus (+) terminal
- Terminal 4 Scan tool power ground terminal
- Terminal 5 Common signal ground terminal
- Terminal 6 High speed GMLAN serial data bus (+) terminal
- Terminal 7 Keyword communications terminal
- Terminal 11 Mid speed GMLAN serial bus (-) terminal or Object high speed GMLAN serial bus (-) terminal
- Terminal 12 Chassis high speed GMLAN serial bus (+) terminal
- Terminal 13 Chassis high speed GMLAN serial bus (-) terminal
- Terminal 14 High speed GMLAN serial data bus (-) terminal
- Terminal 16 Scan tool power, battery positive voltage terminal

Serial Data Reference

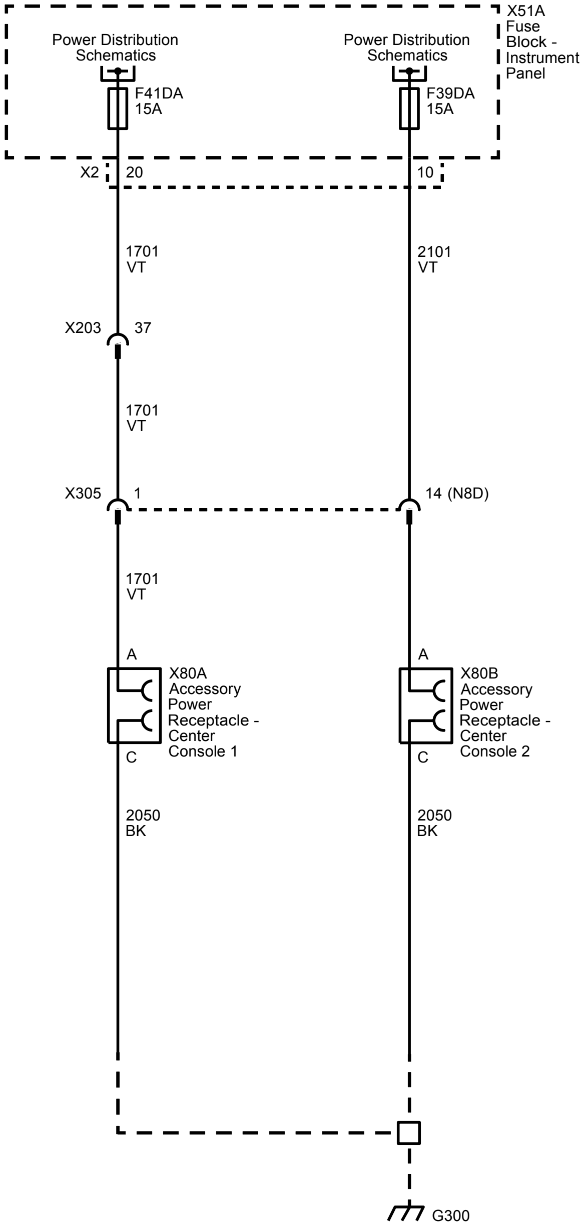
The scan tool communicates over the various buses on the vehicle. When a scan tool is installed on a vehicle, the scan tool will try to communicate with every device that could be optioned into the vehicle. If an option is not installed on the vehicle, the scan tool will display No Comm (or Not Connected) for that optional device. In order to avert misdiagnoses of No Communication with a specific device, refer to CELL Link Error - Link target cell (cell ID 148085) is invalid for this publication. for a list of devices, the buses they communicate with, and the RPO codes for a specific device.

Power Outlets

Schematic and Routing Diagrams

Cigar Lighter/Power Outlet Schematics

12-Volt DC Power Outlets


X51A Fuse Block - Instrument Panel
Power Distribution Schematics
F41DA 15A
Power Distribution Schematics
F39DA 15A
X2
20
10
1701 VT
2101 VT
X203
37
1701 VT
X305
1
14 (N8D)
1701 VT
A
X80A Accessory Power Receptacle - Center Console 1
C
A
X80B Accessory Power Receptacle - Center Console 2
C
2050 BK
2050 BK
G300

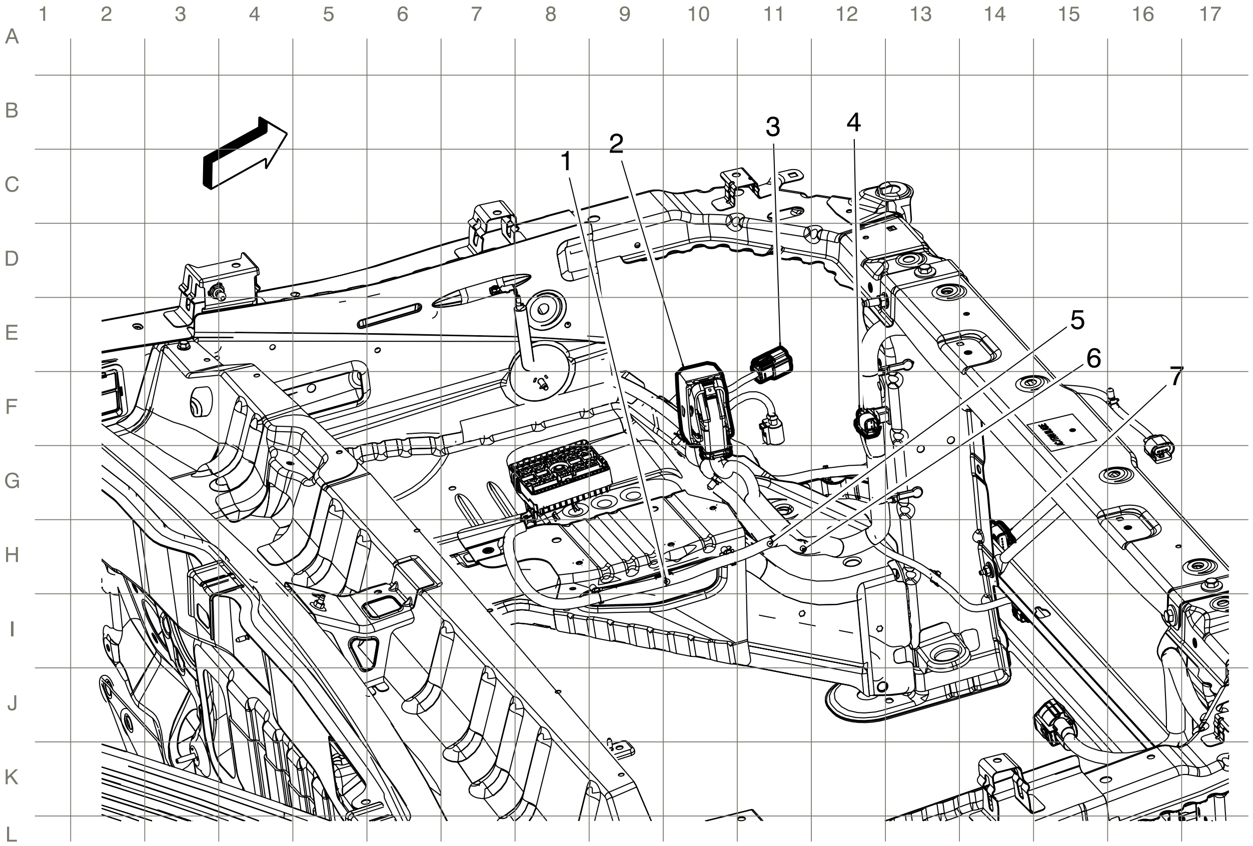
Description and Operation

Power Outlets Description and Operation

System Description

The vehicle is fitted with either a cigarette lighter or with 12 V accessory power outlets. The power outlet is operational when the ignition is turned to either the On or the Accessories positions. The cigarette lighter is operational whenever the ignition is in the On position. To operate the cigarette lighter, press in the lighter knob. When the element is hot, the lighter automatically pops out and is ready for use.

Forward Lamp Harness Routing - Left Engine Compartment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K
L
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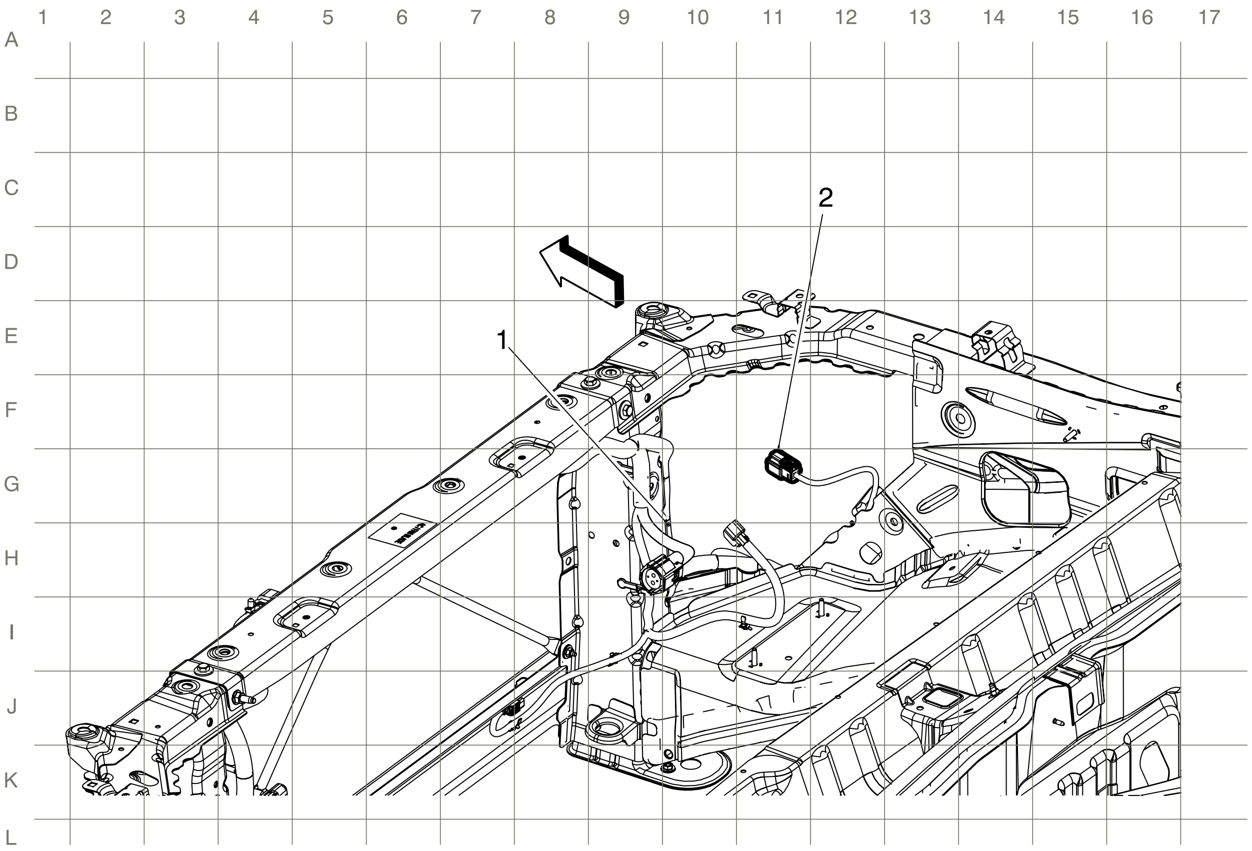
Items

1. J117
2. X102
3. X110
4. X104
5. J118
6. J119
7. X105

Forward Lamp Harness Routing - Right Engine Compartment



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G
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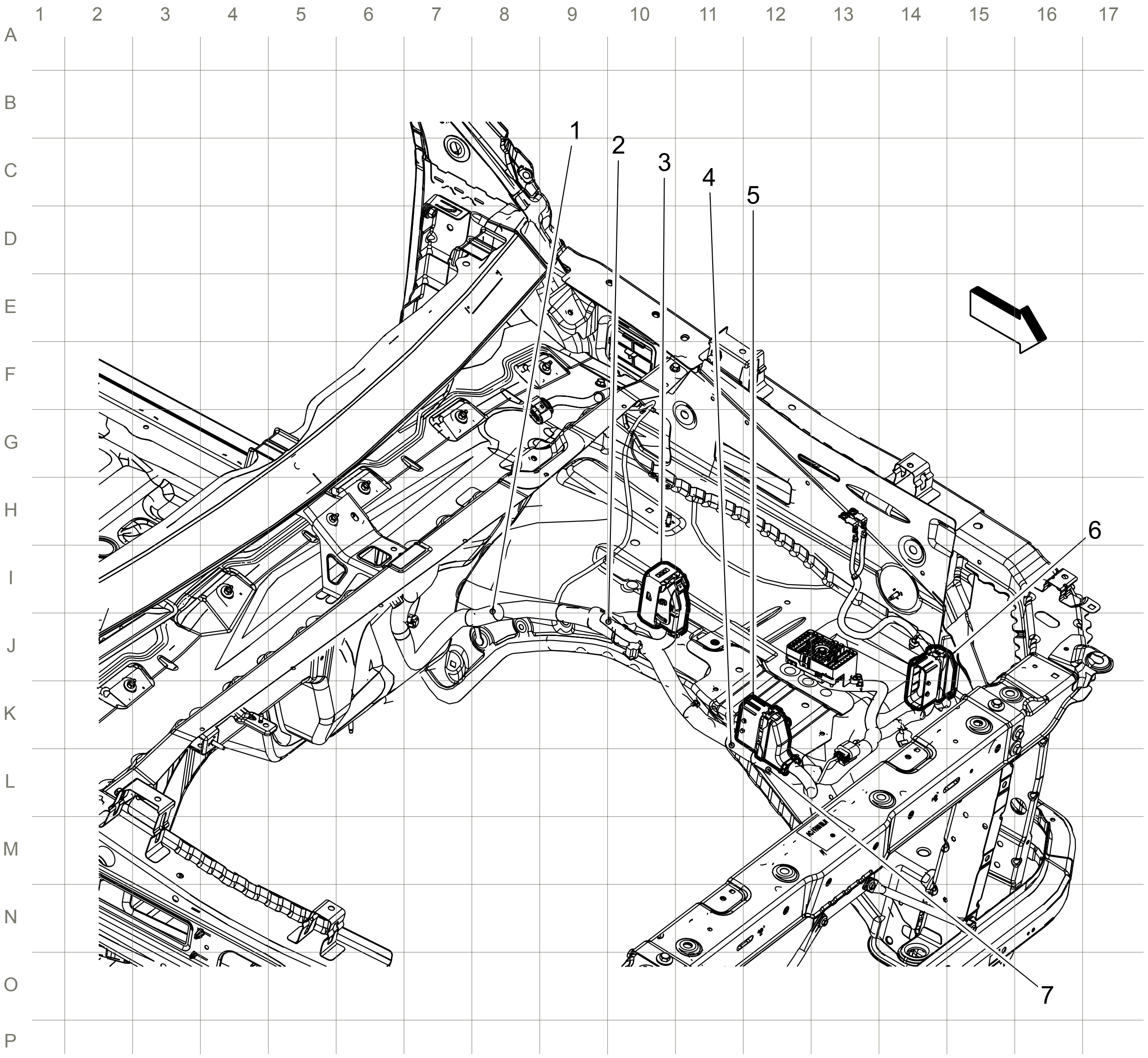
I
J
K
L
1
2

Items

1. J120

2. X120

Body Harness Routing - Left Engine Compartment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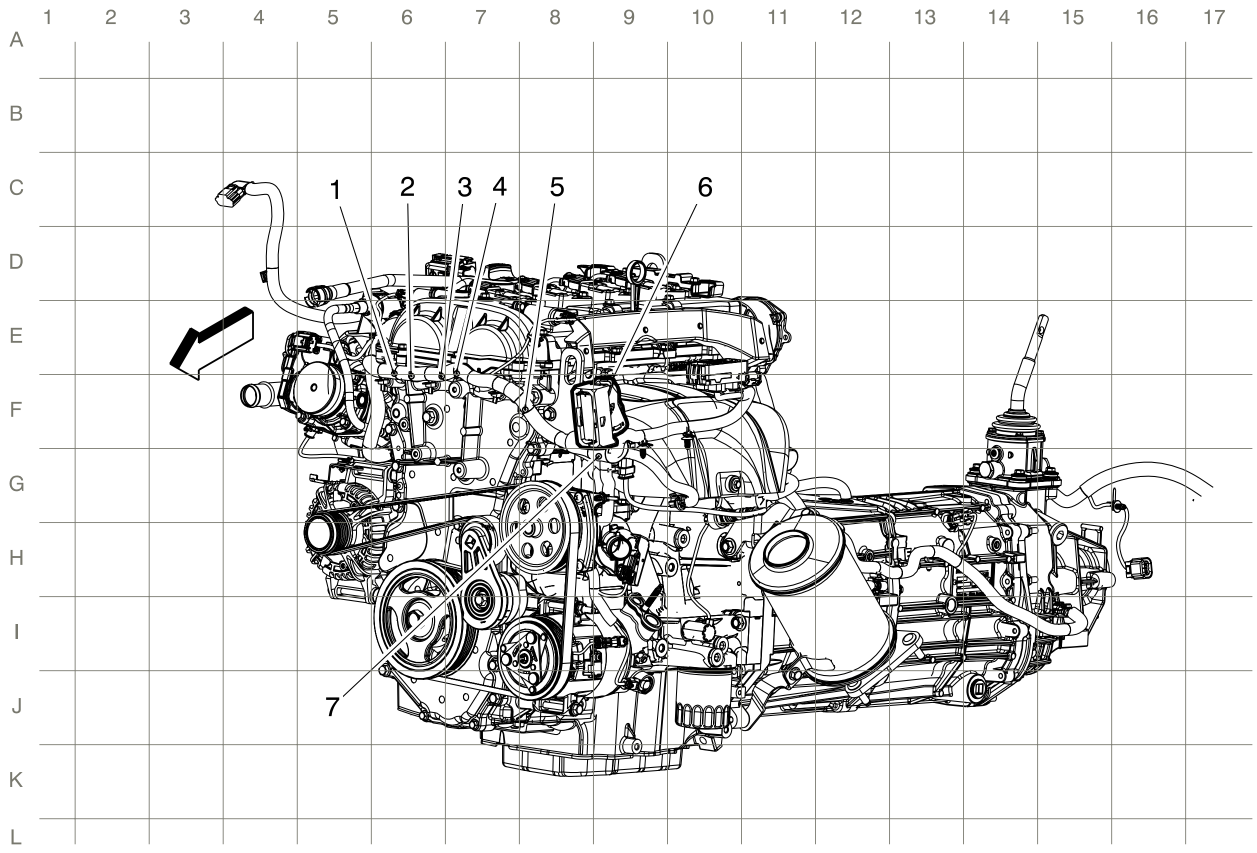
Items

1. J103
2. J102
3. X106
4. J101 (NQ6/NQ7)
5. X101
6. X102
7. J100 (NQ6)

Engine Harness Routing - Left Front (LCV)



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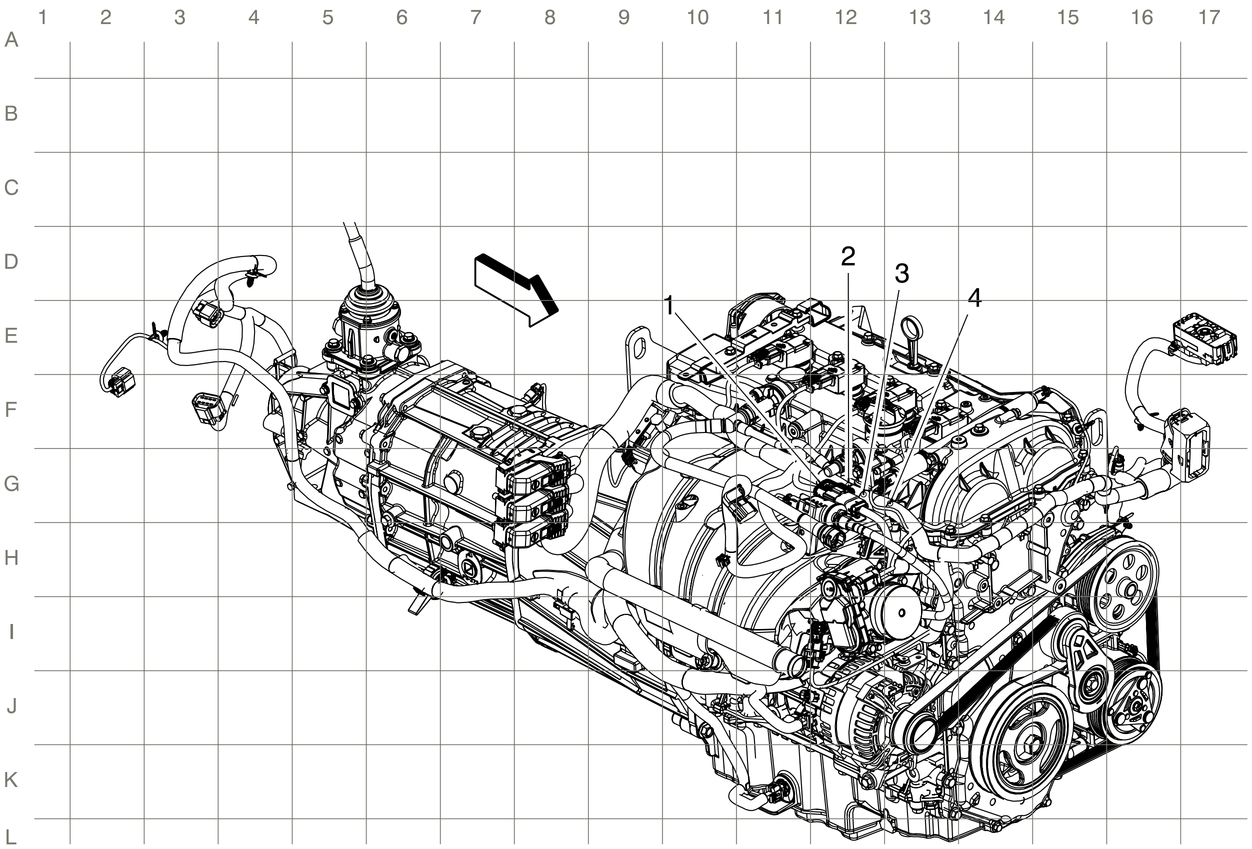
Items

1. J111
2. J109
3. J107
4. J110
5. J108 (LCV)
6. X101
7. J106

Engine Harness Routing - Right Front Top (LCV)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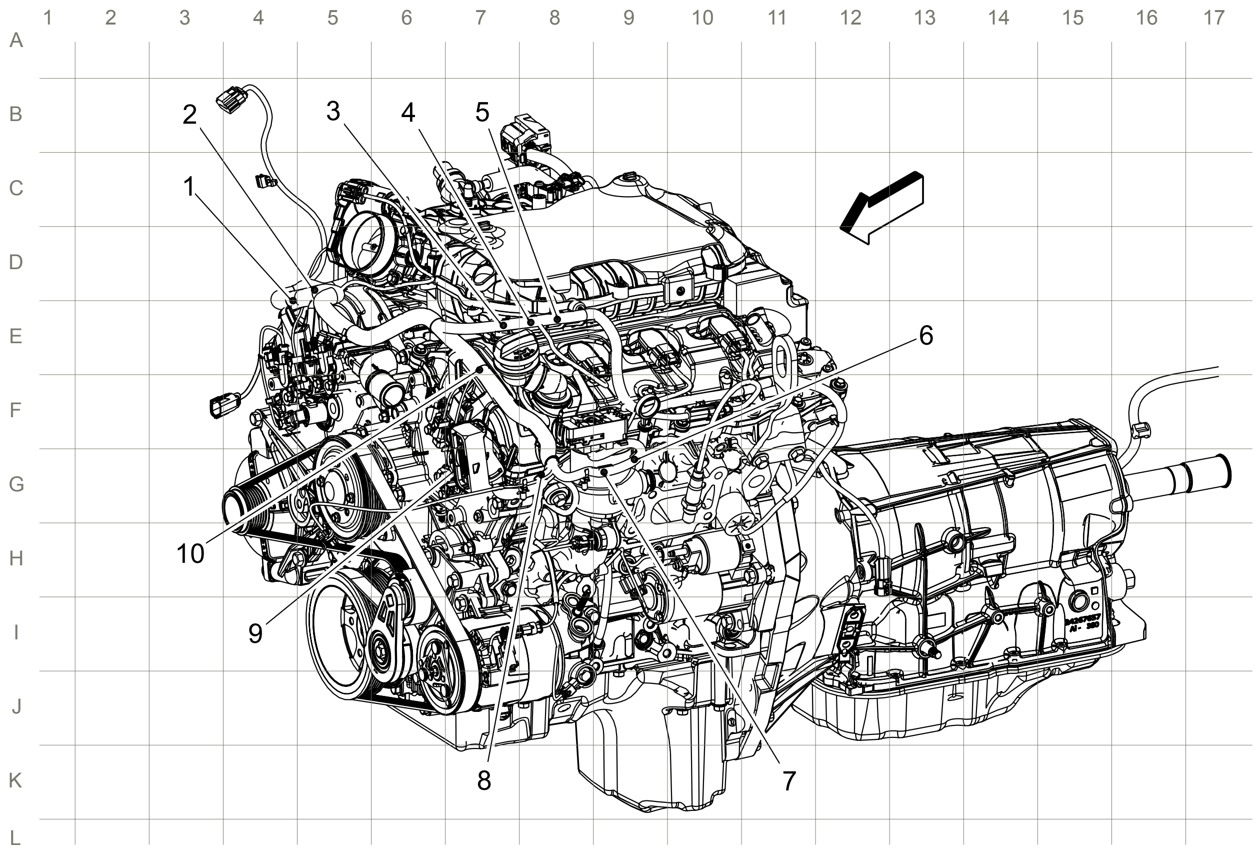
Items

1. X160
2. J112 (LCV)
3. J113
4. J114

Engine Harness Routing - Front (LFX)



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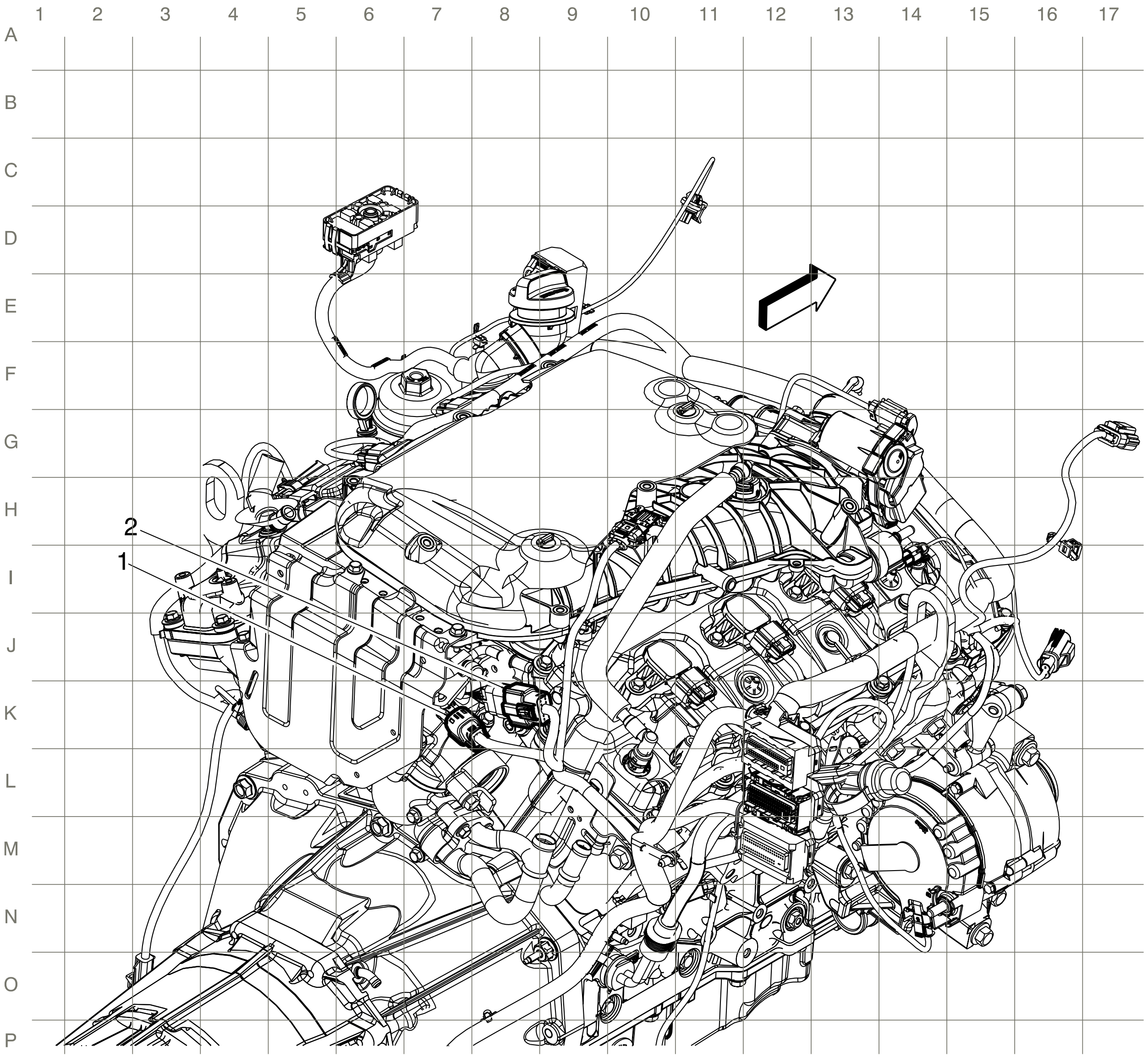
Items

1. J114
2. J110
3. J109
4. J111
5. J116 (LFX)
6. J113
7. J107
8. J106
9. X101
10. J115 (LFX)

Engine Harness Routing - Rear (LFX)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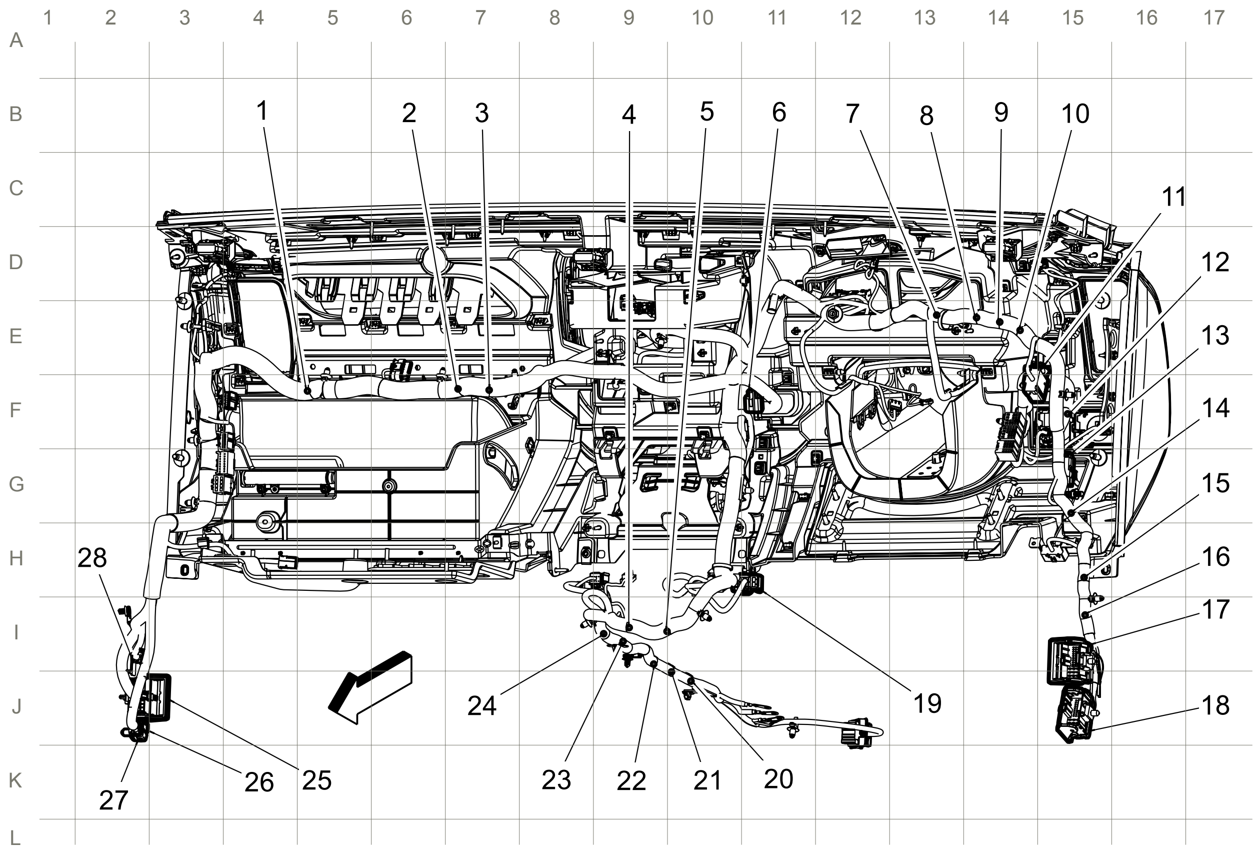
Items

1. X160
2. X161 (LFX)

Instrument Panel Harness Routing - Rear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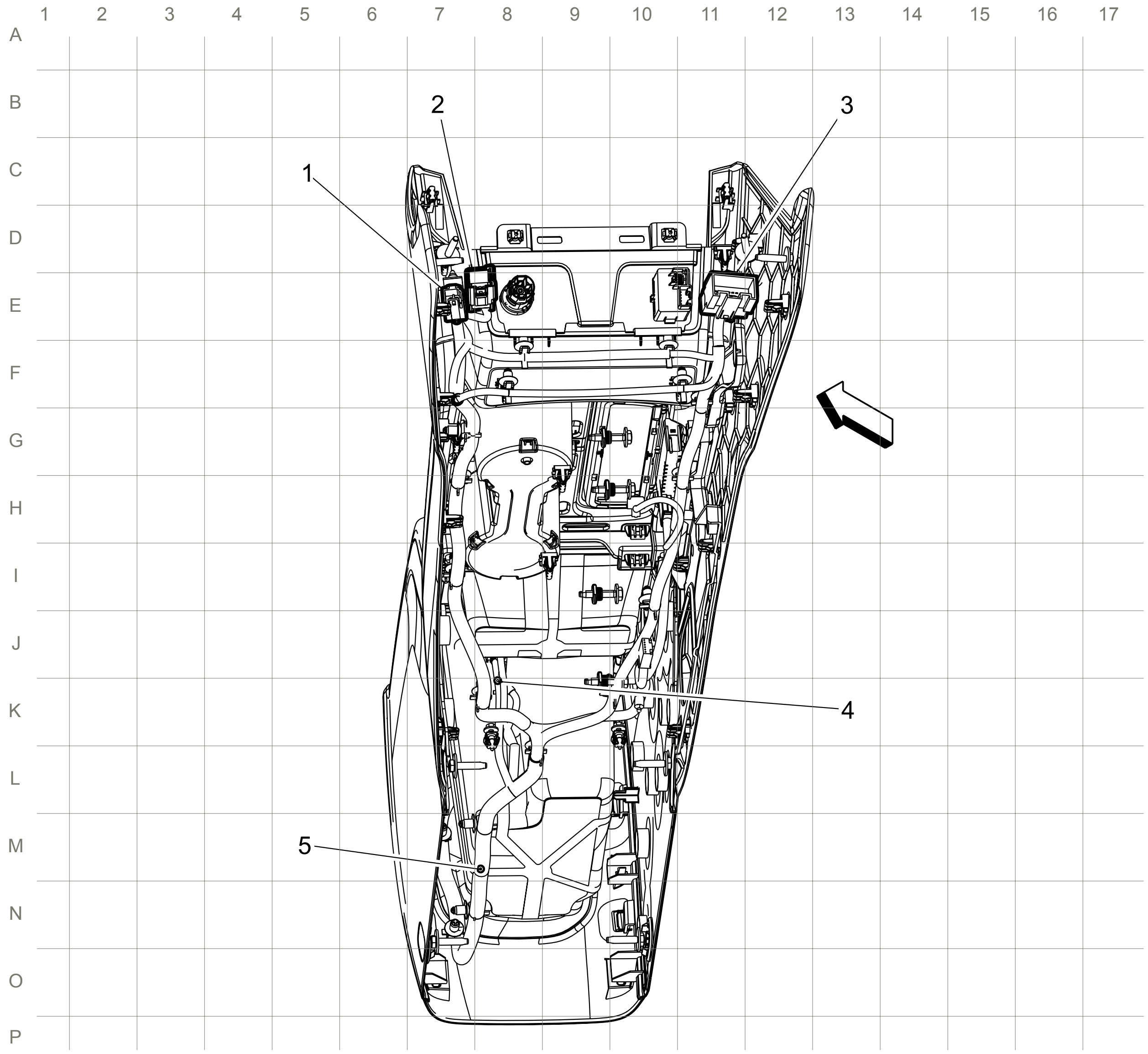
Items

1. J231
2. J229 (UQ3)
3. J230 (UQ3)
4. J222 (IO4/IO5/IO6)
5. J223
6. X206 (C68)
7. J219 (UQ3)
8. J221
9. J220
10. J218 (UQ3)
11. JX200
12. J217 (KA1)
13. X399
14. J214
15. J215

16. J216
17. X200
18. X202
19. X204
20. J228
21. J227
22. J226 (TG5/IO4/IO5/IO6)
23. J225
24. J224
25. X203
26. X220 (IO6)
27. X219 (Except U2M)
28. X218 (U2M)

Center Console Harness Routing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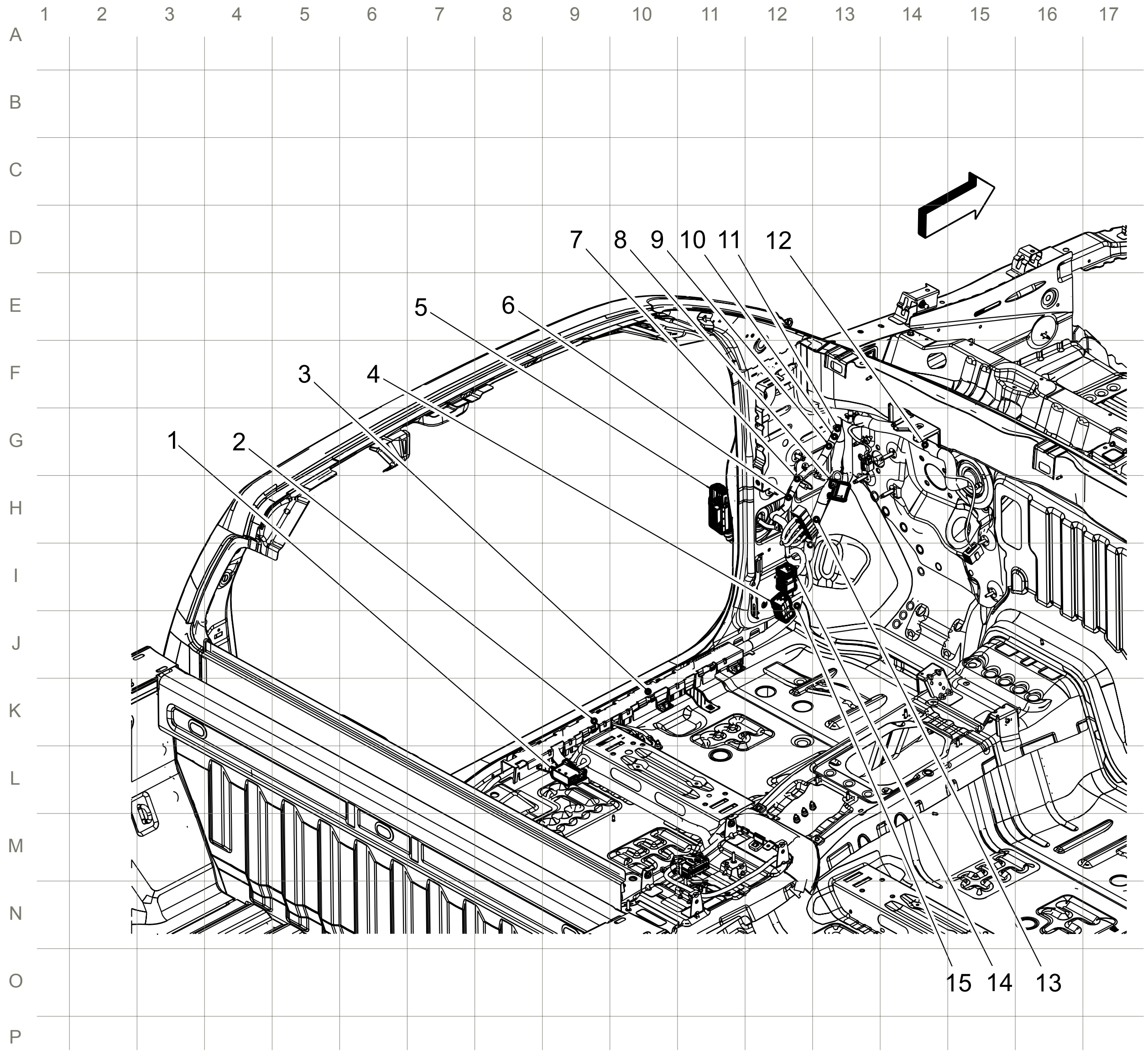
Items

1. X302
2. X205 (MYB)
3. X204
4. J304 (IO3 with N8D)
5. J305

Body Harness Routing - Left Front of Passenger Compartment (Extended Cab)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Items

1. X310
2. J302 (53)
3. J209
4. X200
5. X500
6. J201
7. J203
8. JX201
9. J204
10. J205
11. J202

11. J202

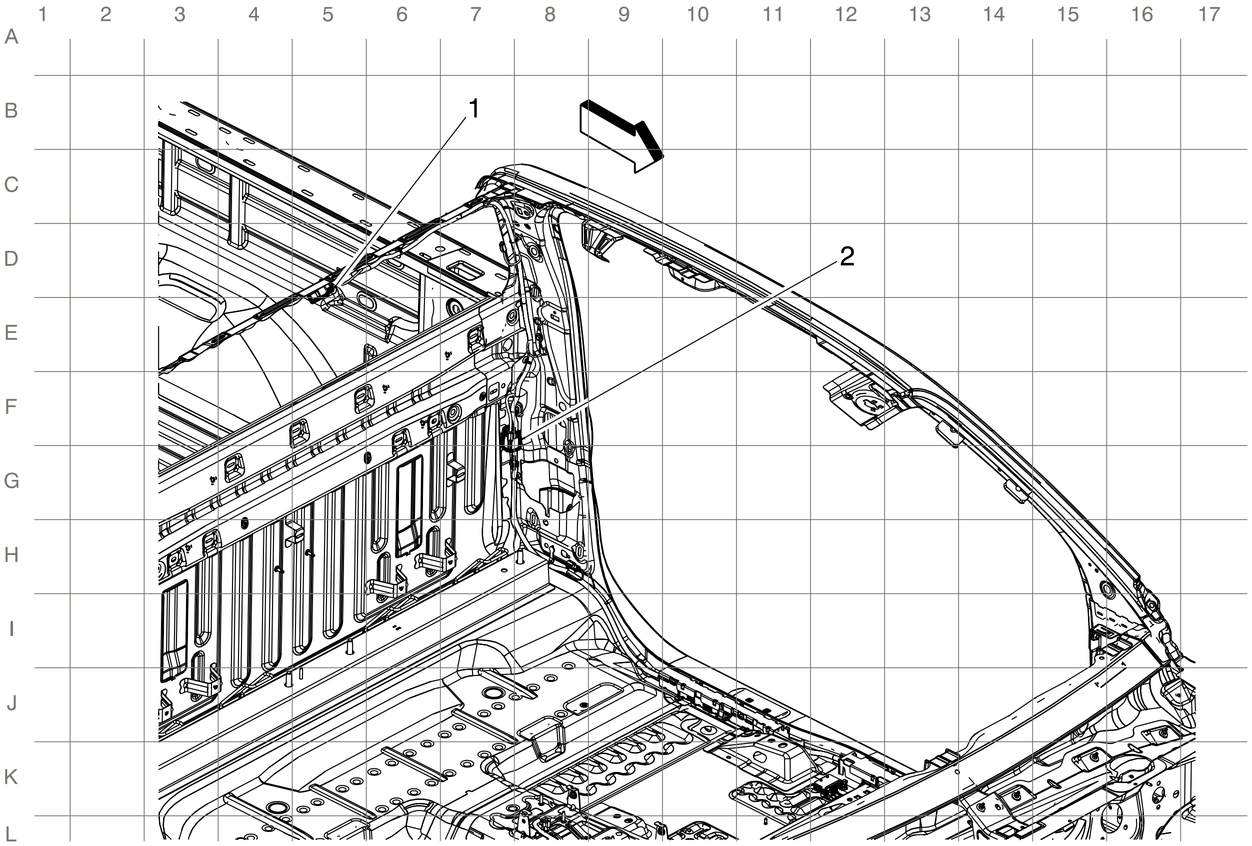
12. J200

13. J208

14. X202

15. J206

Body Harness Routing - Left Rear of Passenger Compartment (Extended Cab)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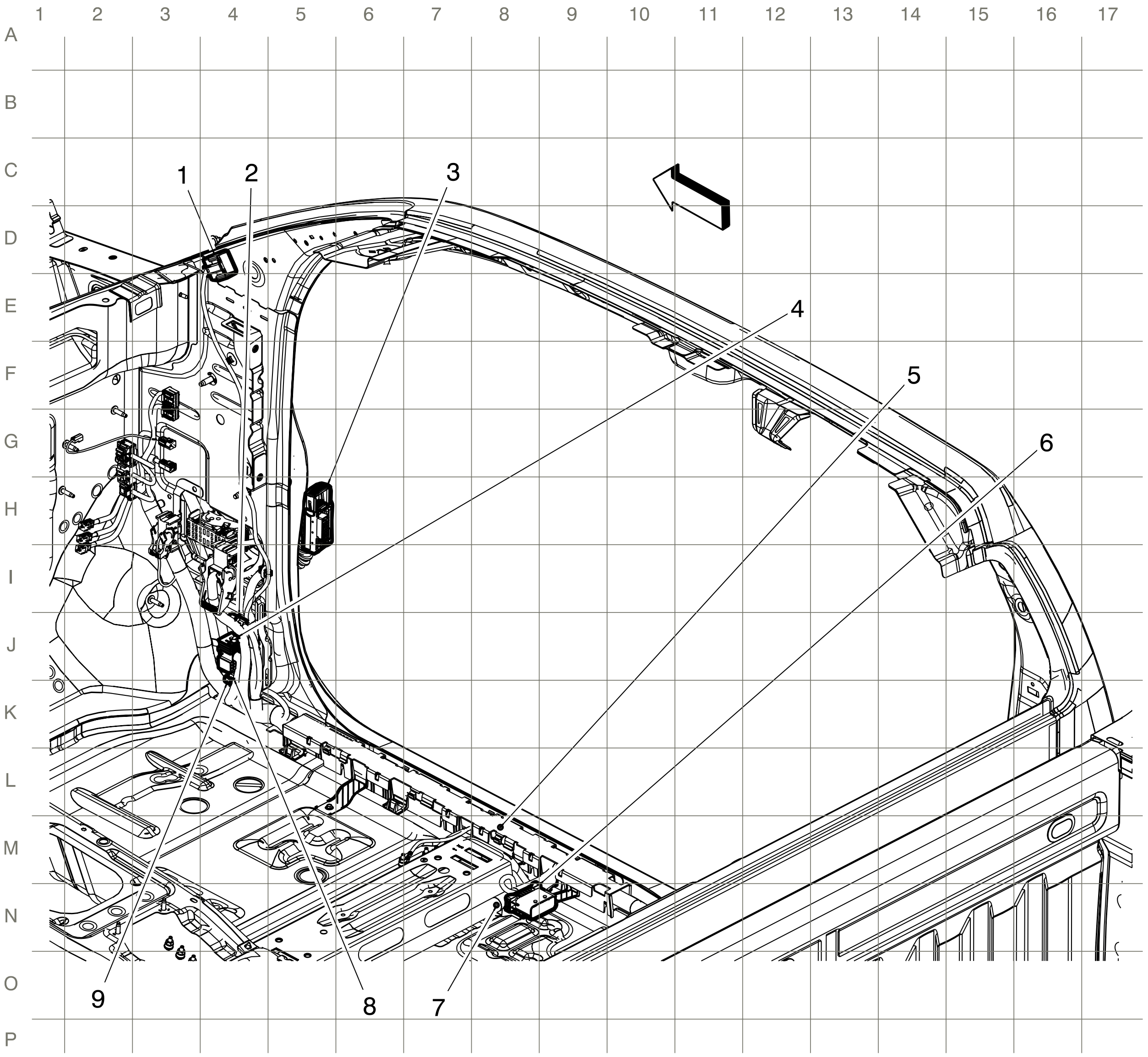
Items

1. X301

2. X700

Body Harness Routing - Right Front of Passenger Compartment (Extended Cab)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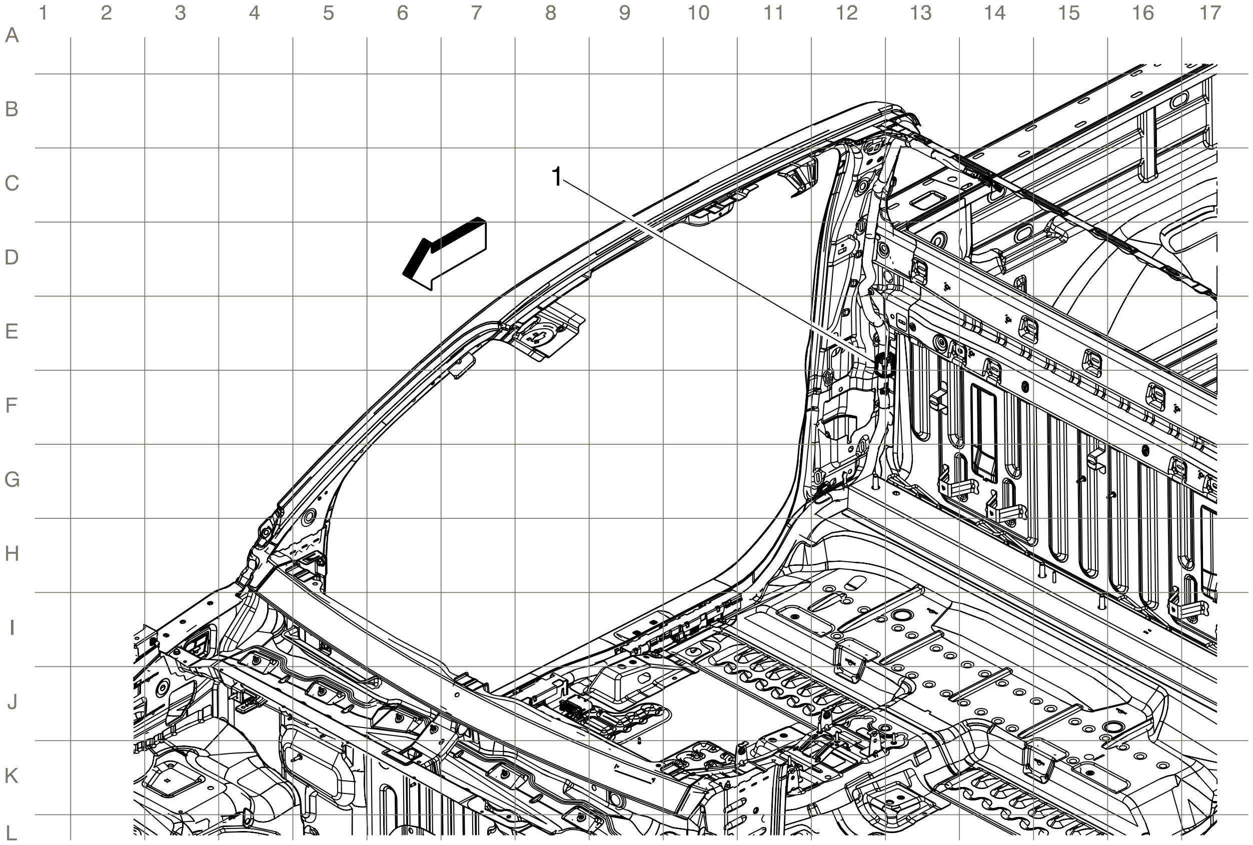
Items

1. X300
2. X218 (U2M)
3. X600
4. X203
5. J303 (53)
6. X320
7. J301
8. X219 (Except U2M)
9. X220 (IO6)

Body Harness Routing - Right Rear of Passenger Compartment (Extended Cab)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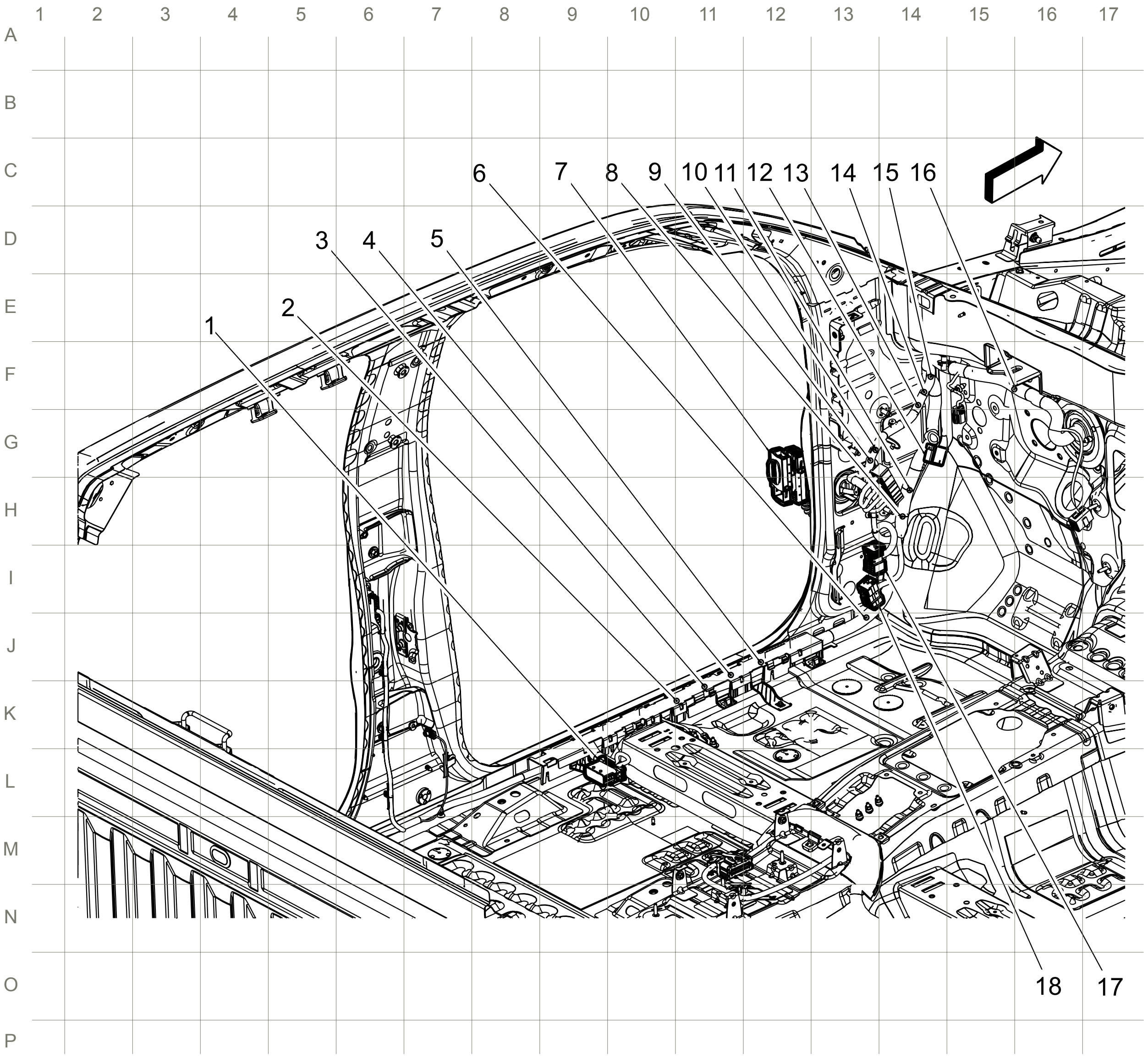
Items

1. X800

Body Harness Routing - Left Front of Passenger Compartment (Crew Cab)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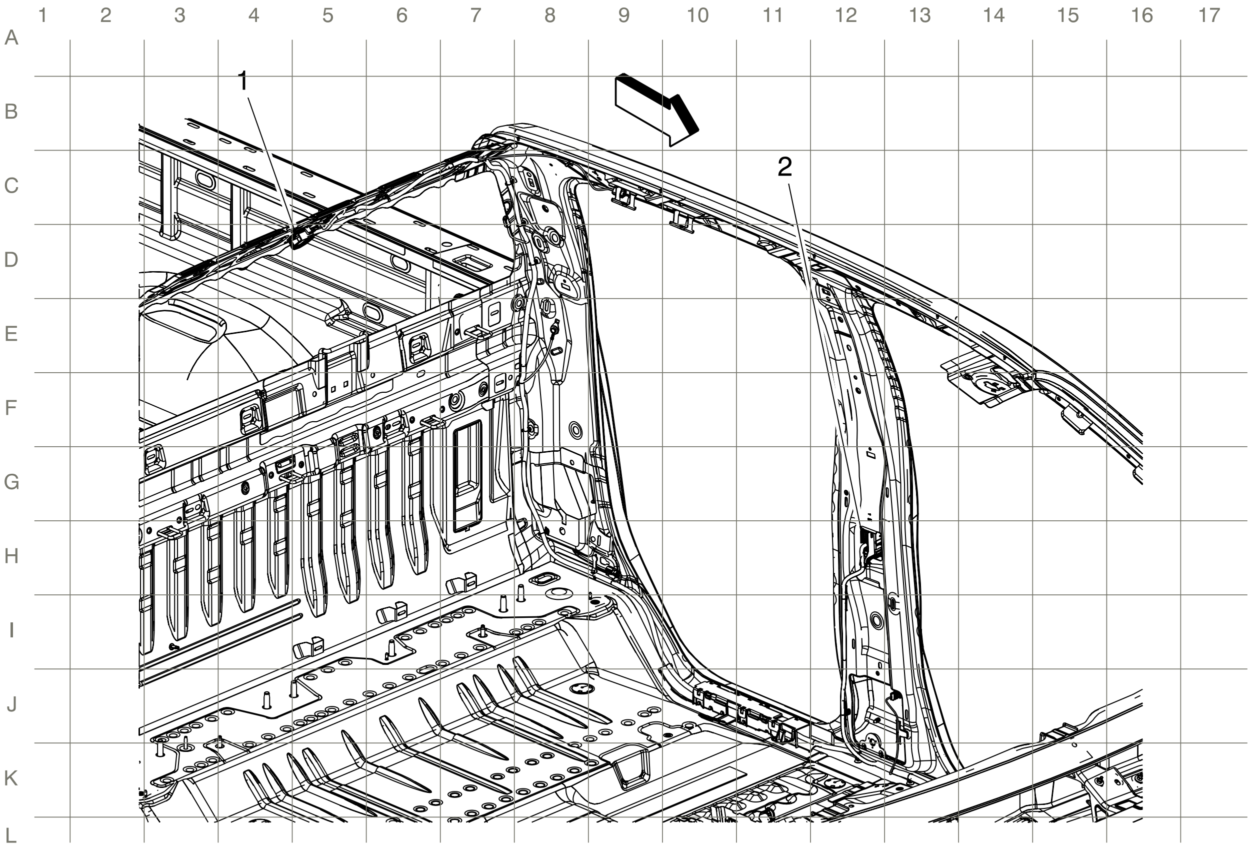
Items

1. X310
2. J209
3. J210 (43)
4. J211 (43)
5. J212 (43)
6. J206
7. X500
8. J207
9. J204
10. J203
11. J208

11. J208
12. JX201
13. J202
14. J205
15. J201
16. J200
17. X202
18. X200

Body Harness Routing - Left Rear of Passenger Compartment (Crew Cab)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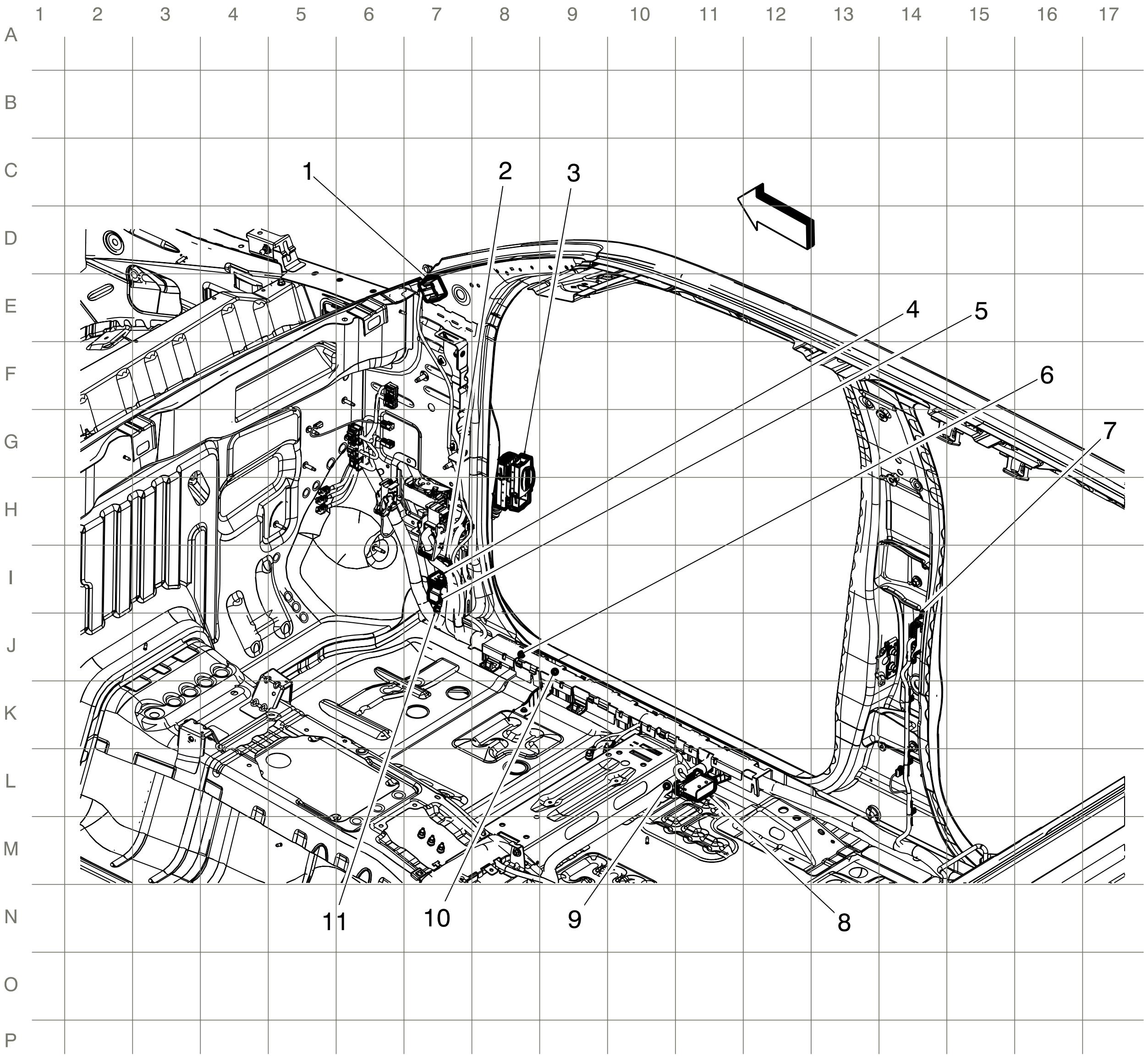
Items

1. X301
2. X700

Body Harness Routing - Right Front of Passenger Compartment (Crew Cab)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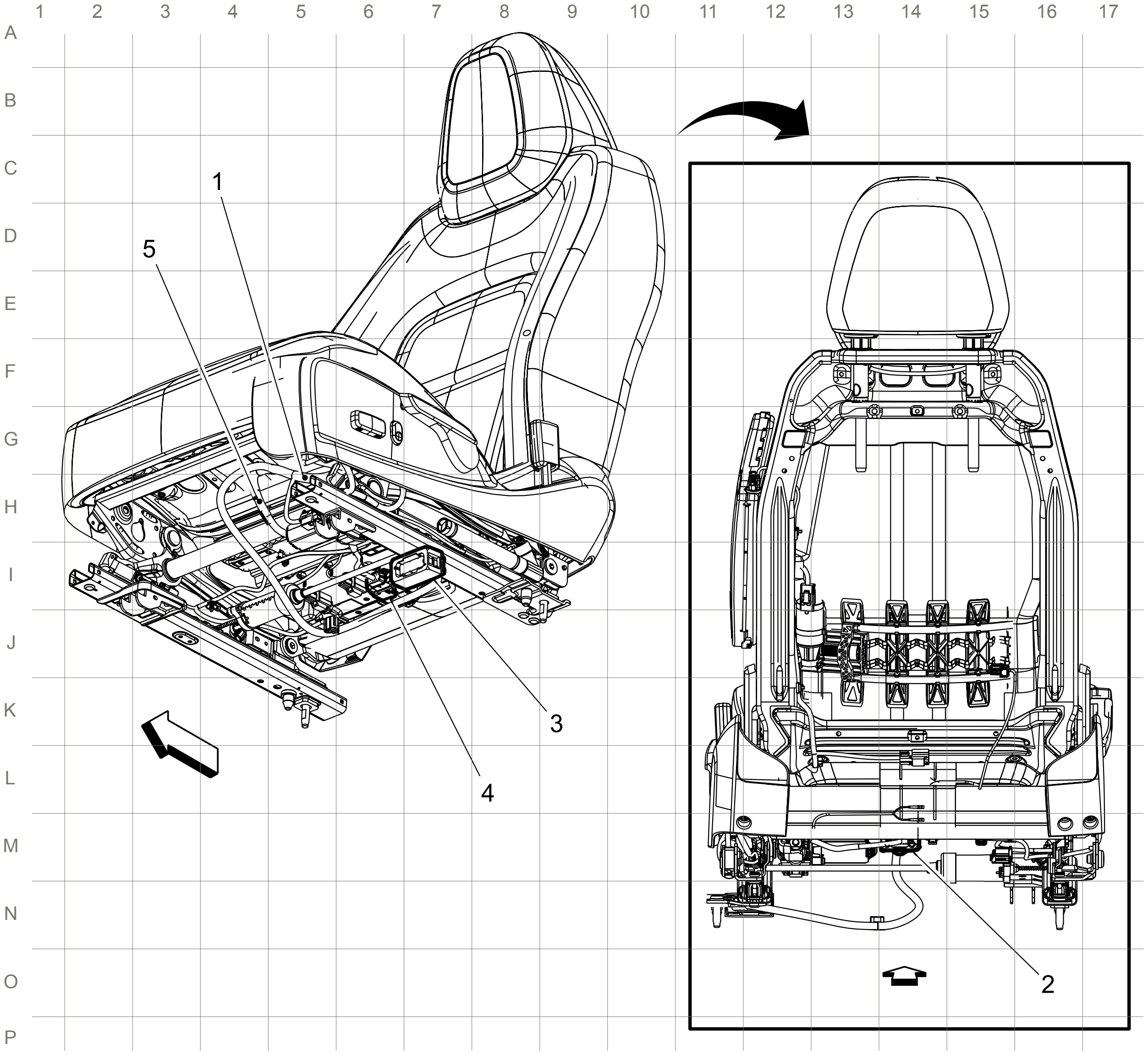
Items

1. X300
2. X218 (U2M)
3. X600
4. X203
5. X220 (IO6)
6. J213 (43 with AXG)
7. X800
8. X320
9. J301
10. J300 (43 with AXG)
11. X219 (Except U2M)

11. X219 (Except U2M)

Driver Seat Harness Routing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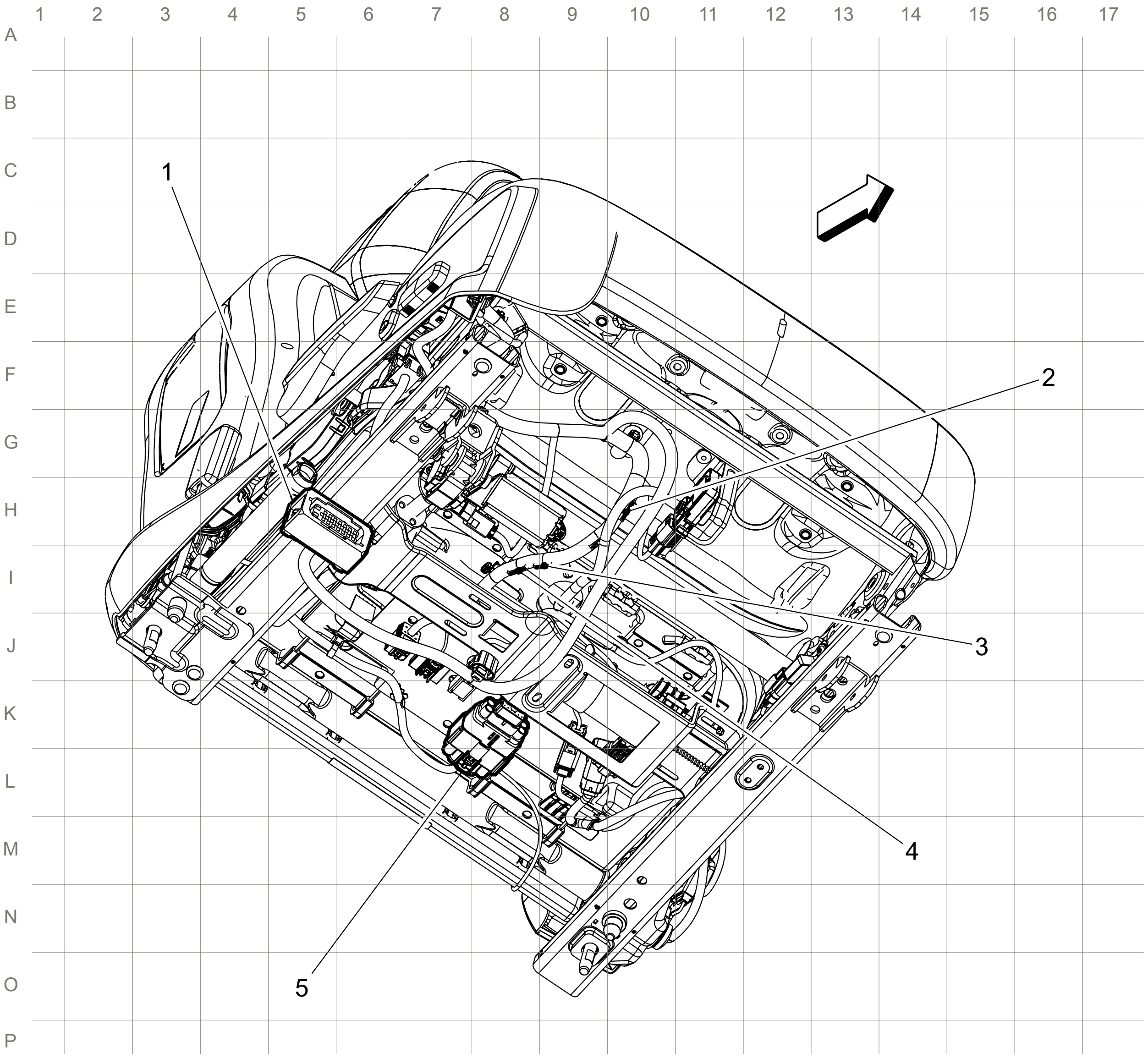
Items

1. J309 (AL9)
2. X311
3. X310
4. X311
5. J311 (AH6/AL9/KA1)

Passenger Seat Harness Routing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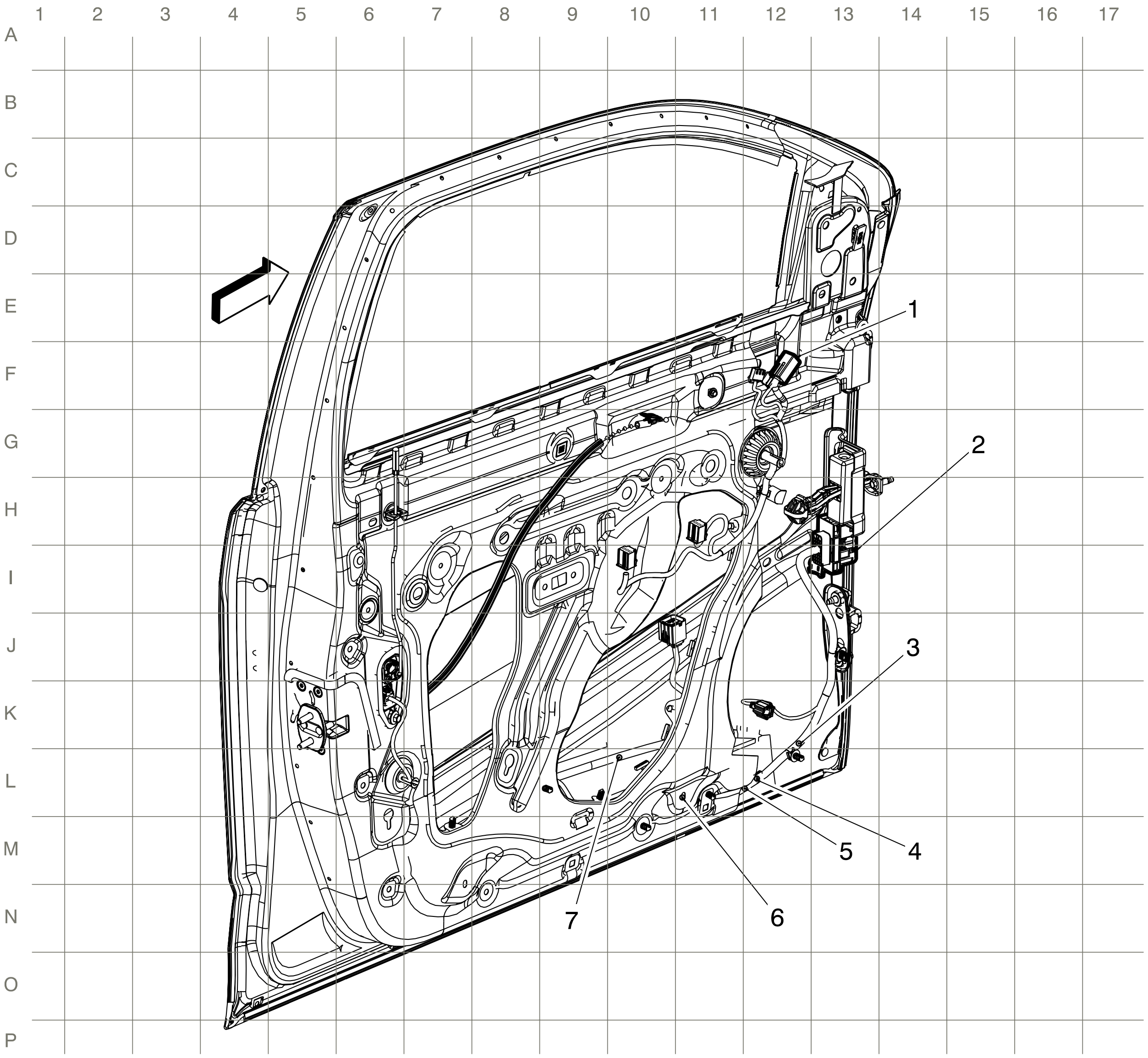
Items

1. X320
2. J310 (AT9)
3. J313 (AL0)
4. J312 (AAQ/AT9/KA1)
5. X321

Driver Door Harness Routing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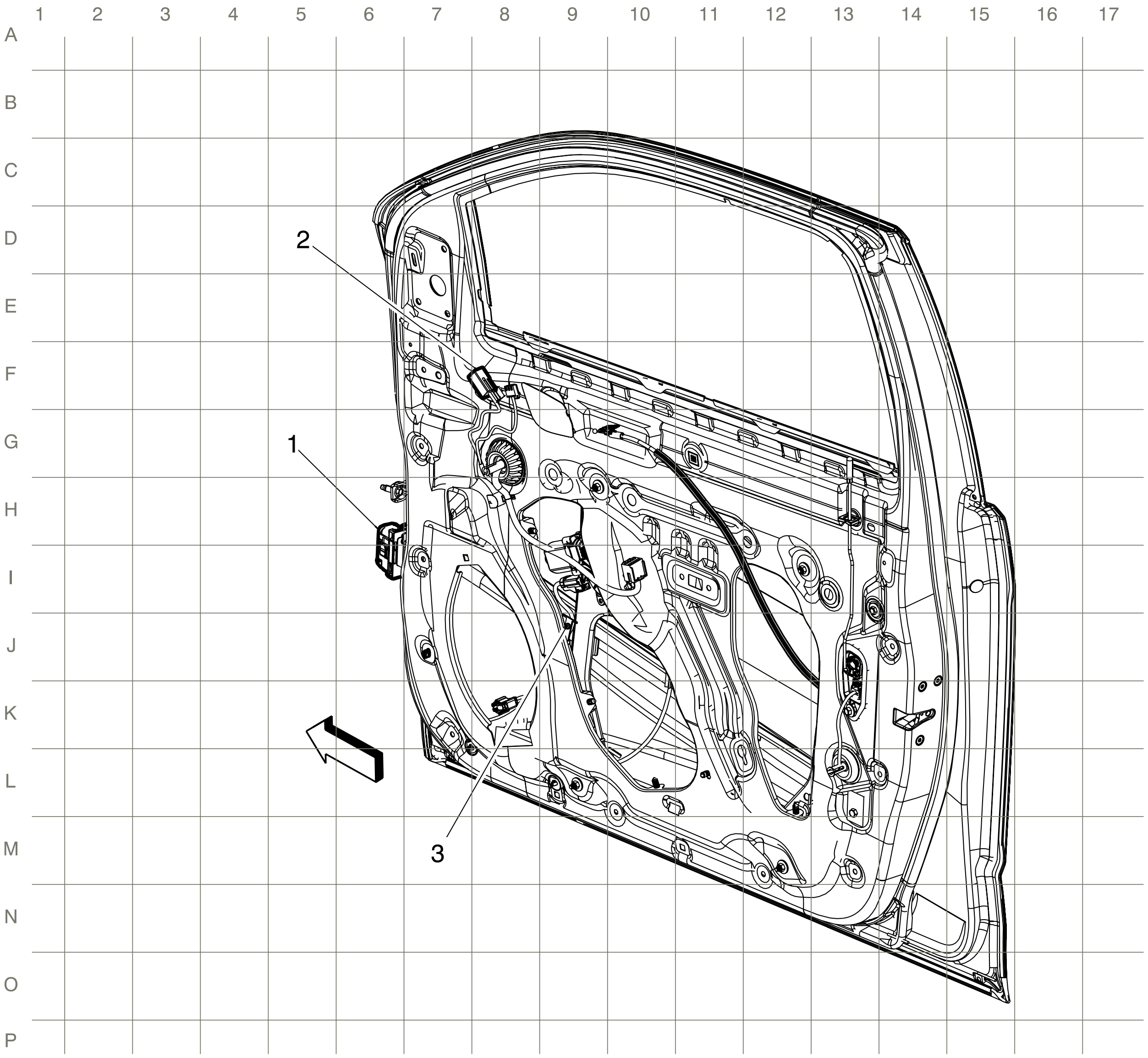
Items

1. X510
2. X500
3. J504
4. J505
5. J503
6. J501
7. J502

Passenger Door Harness Routing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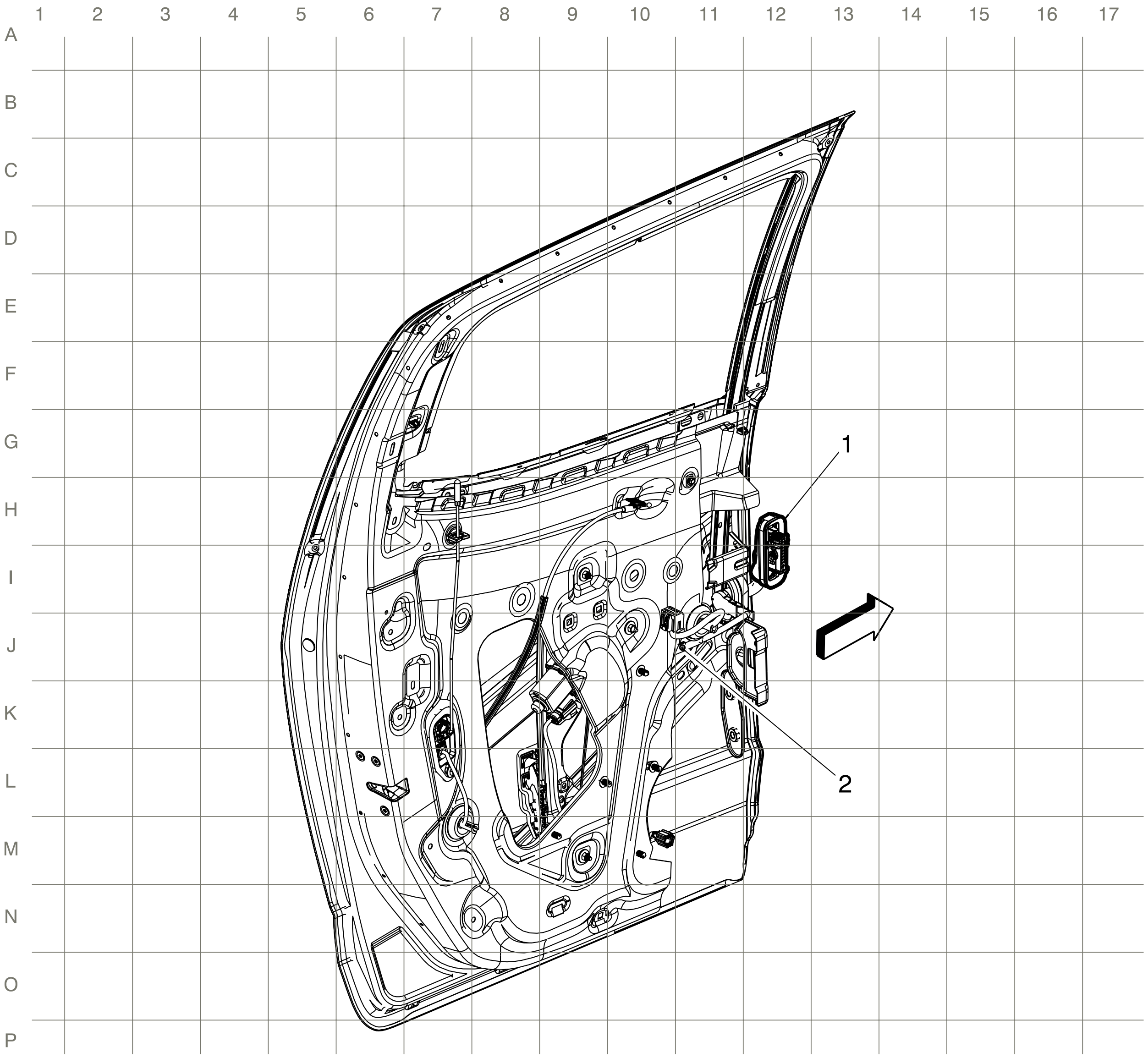
Items

1. X600
2. X610
3. J600

Left Rear Door Harness Routing (Crew Cab)



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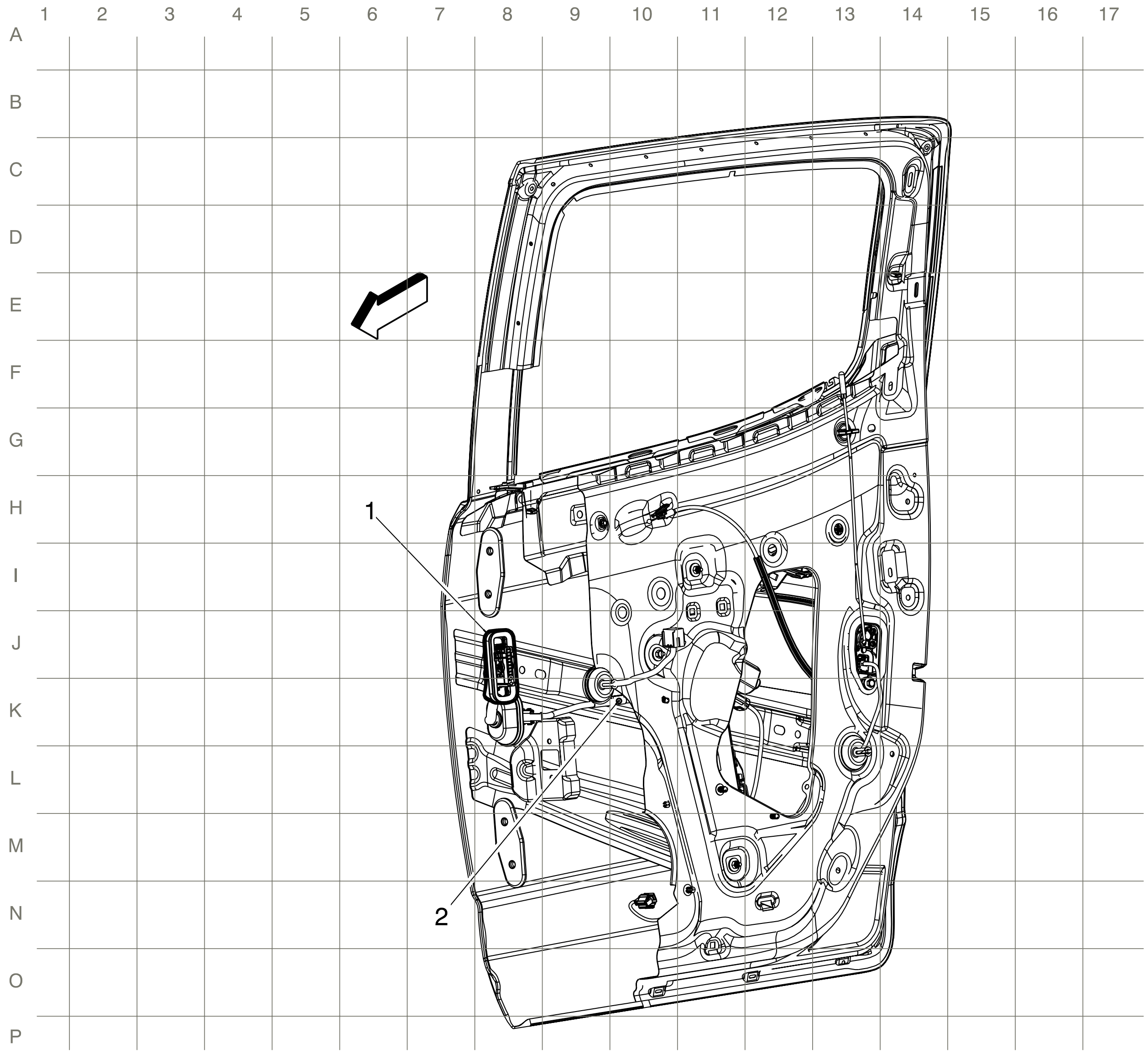
Items

1. X700
2. J701

Right Rear Door Harness Routing (Crew Cab)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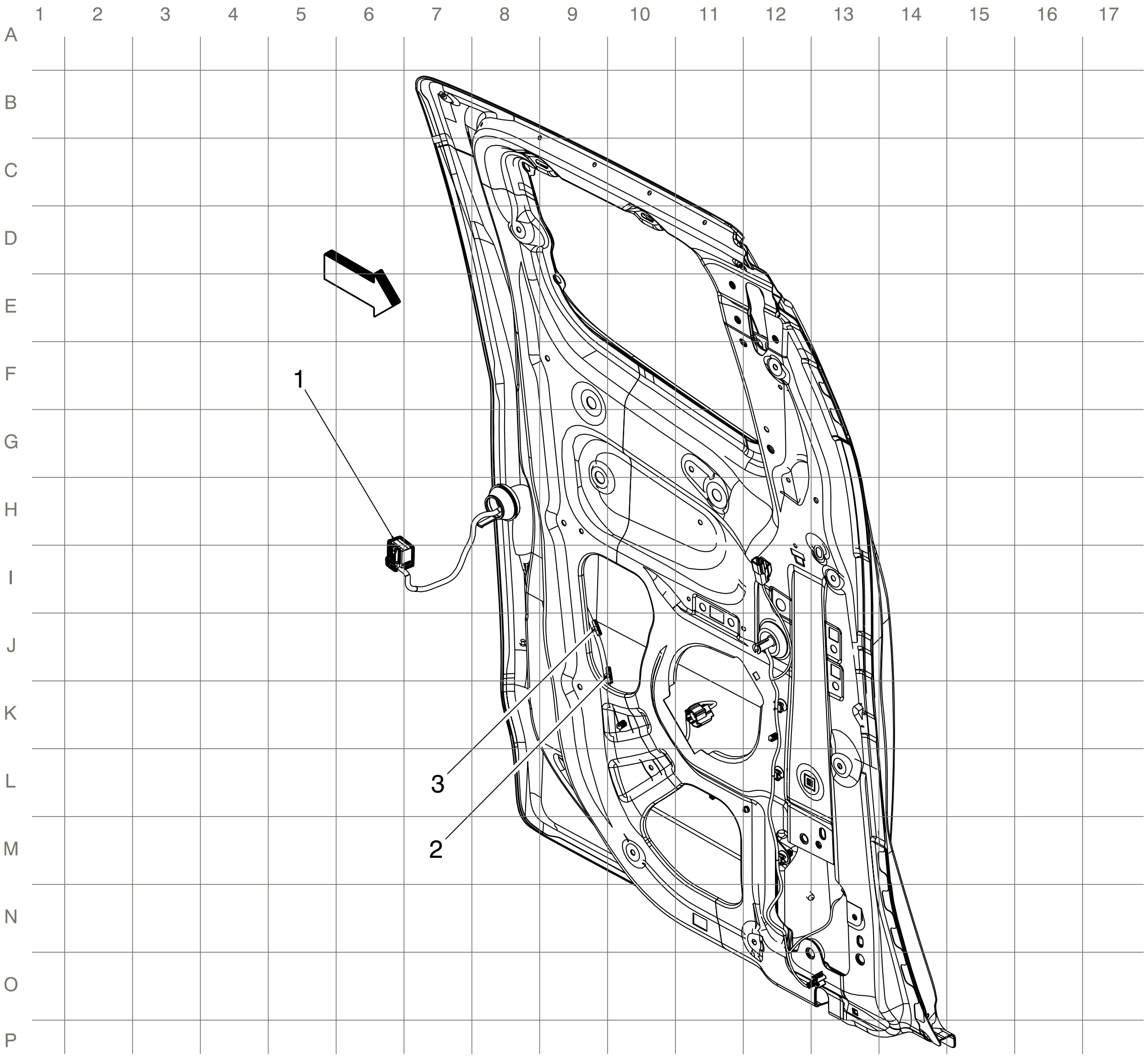
Items

1. X800
2. J801

Left Rear Door Harness Routing (Exended Cab)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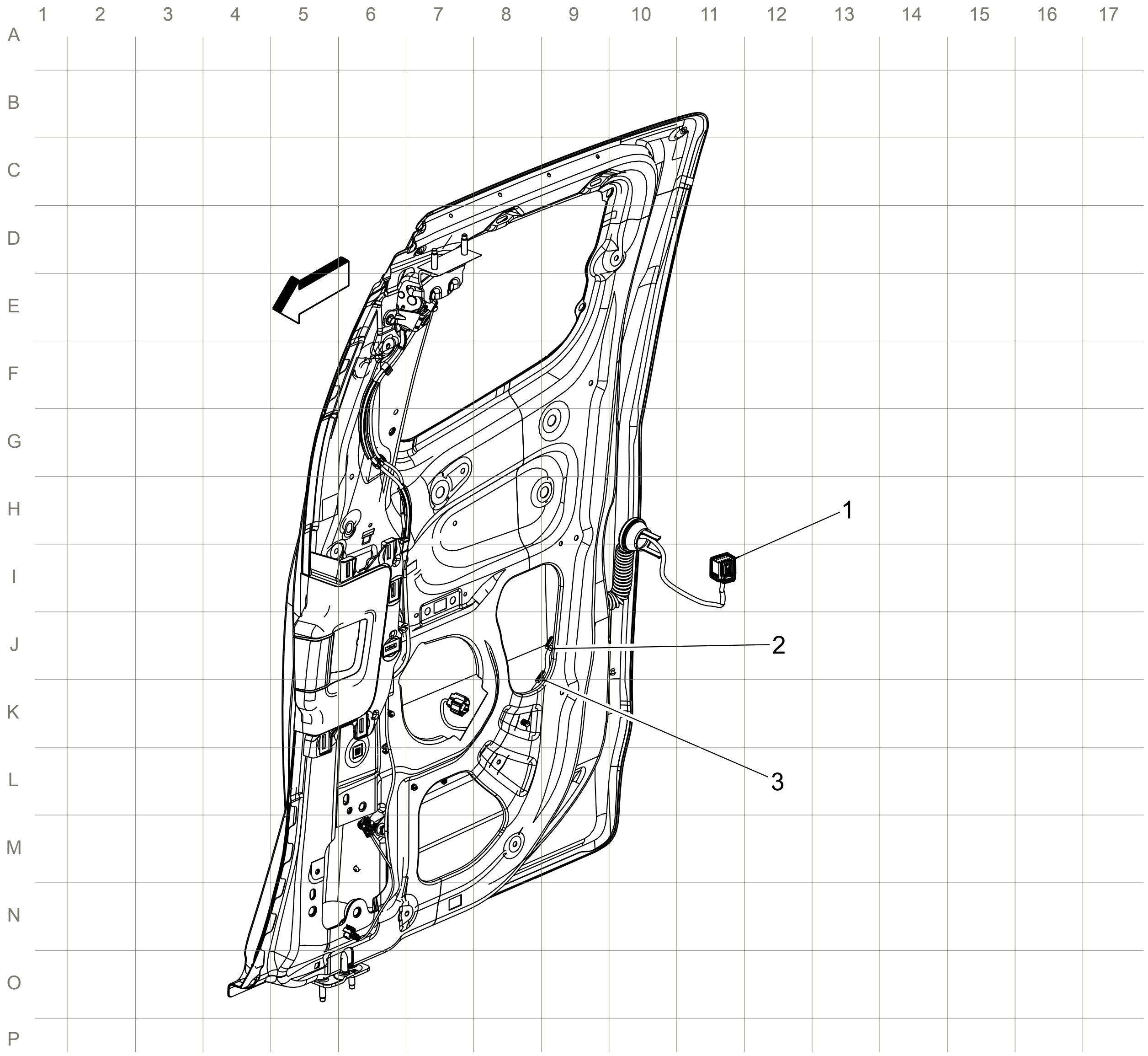
Items

1. X700
2. J701
3. J700 (53)

Right Rear Door Harness Routing (Extended Cab)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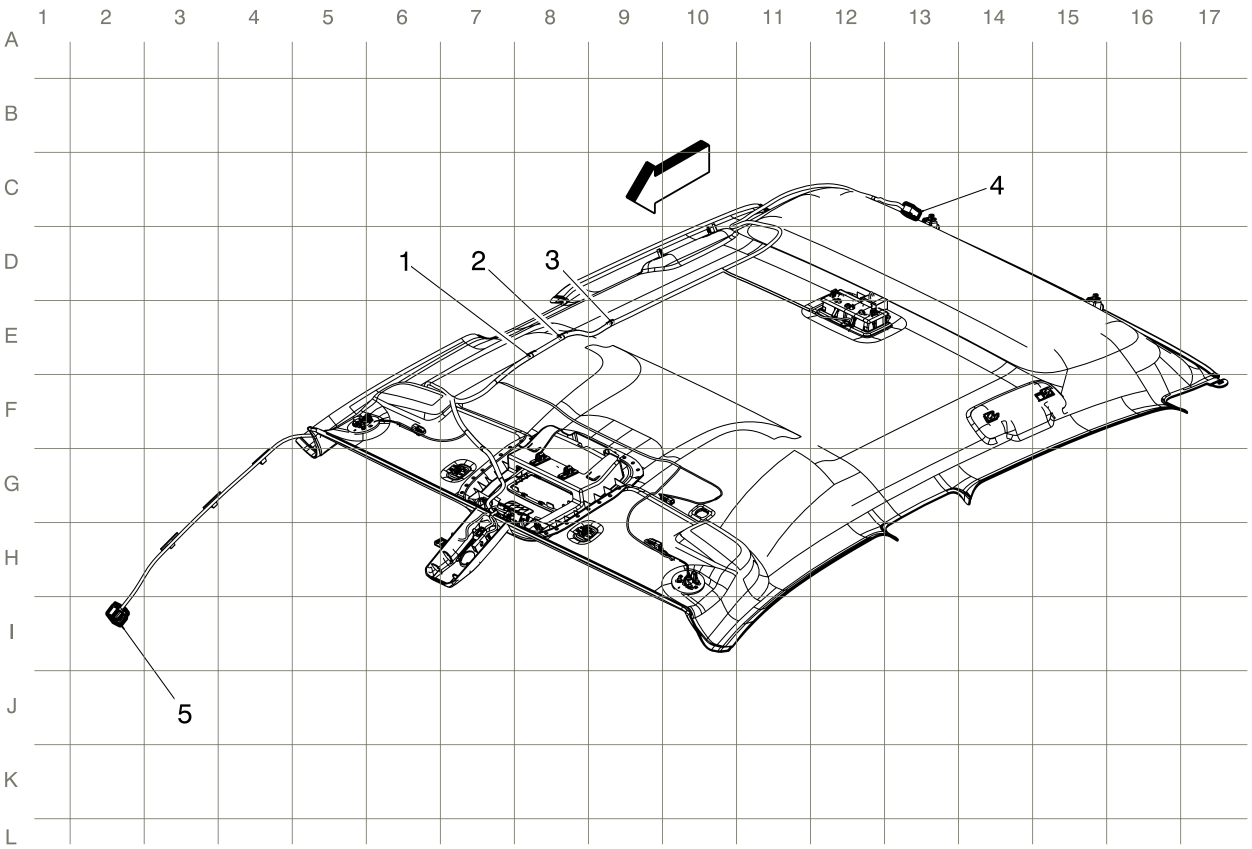
Items

1. X800
2. J800 (53)
3. J801

Headliner Harness Routing (Crew Cab)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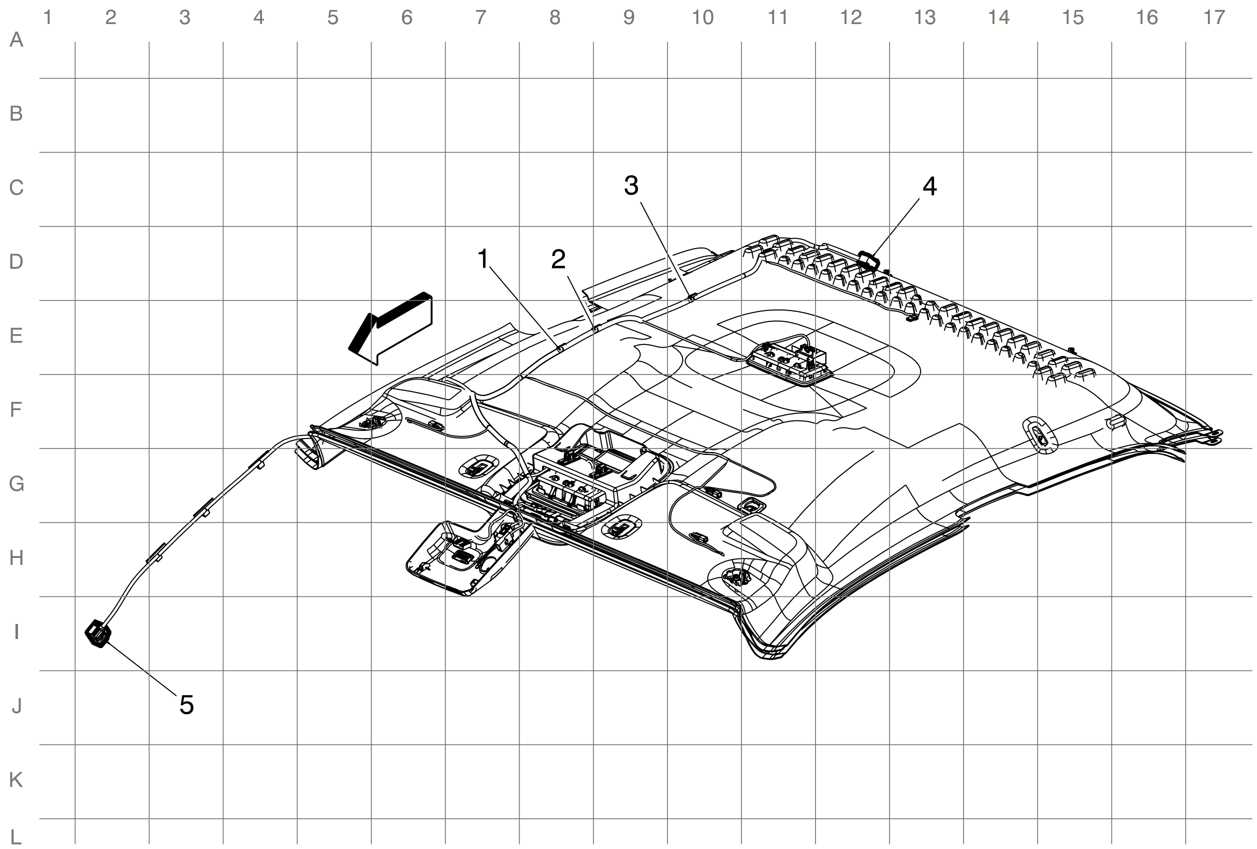
Items

1. J307
2. J306
3. J308
4. X301
5. X300

Headliner Harness Routing (Extended Cab)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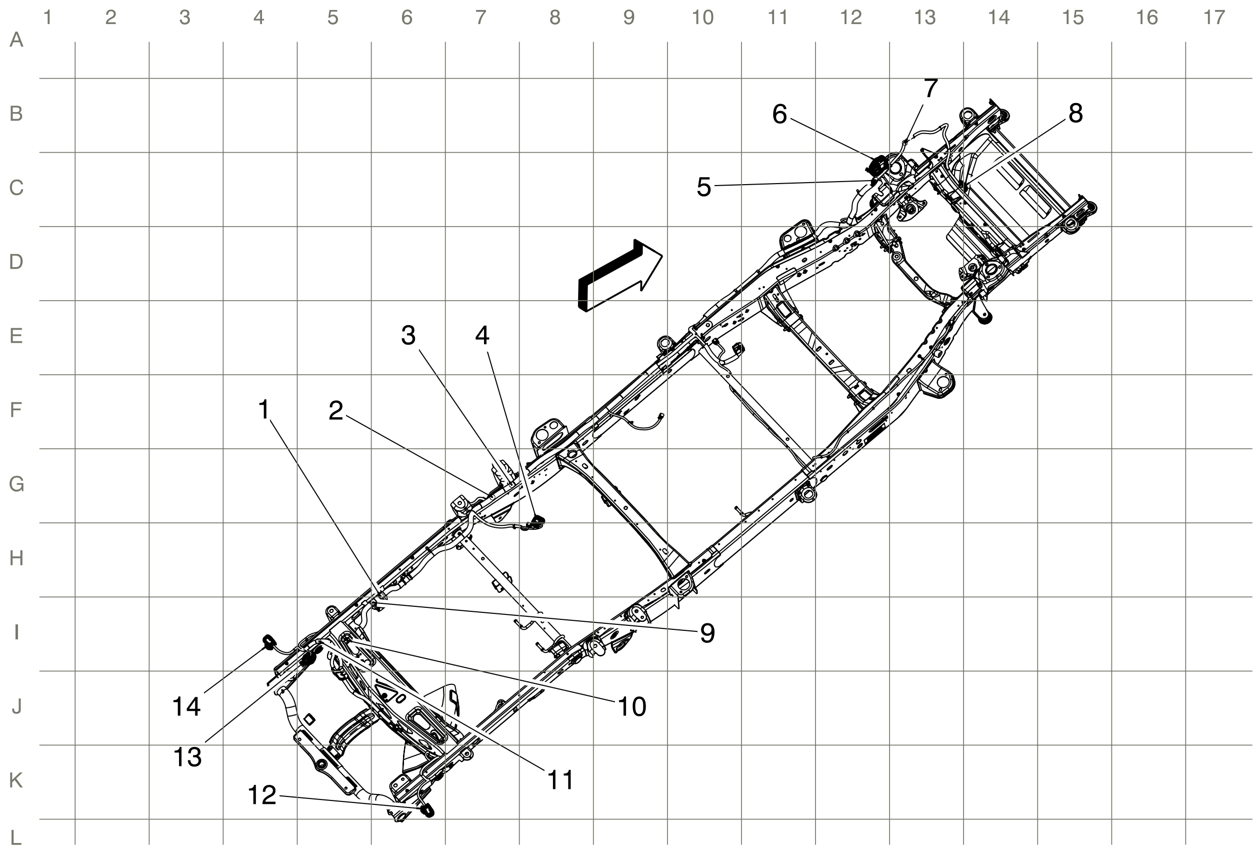
Items

1. J307
2. J306
3. J308
4. X301
5. X300

Chassis Harness Routing (Crew Cab)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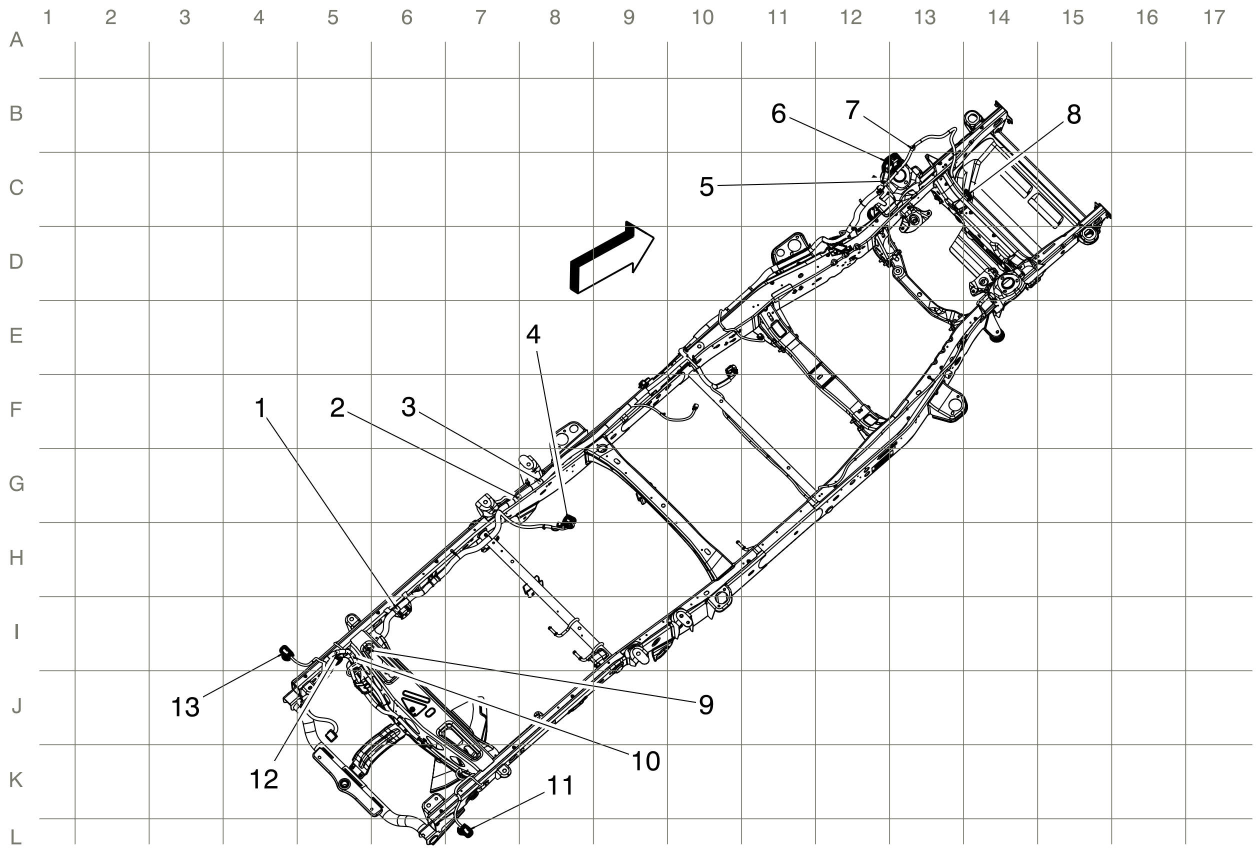
Items

1. J403
2. J404
3. J405
4. X401
5. J105
6. X106
7. J104
8. X103
9. J401
10. J400
11. J402
12. X420
13. X400
14. X410

Chassis Harness Routing (Extended Cab)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Items

1. J403
2. J404
3. J405
4. X401
5. J104
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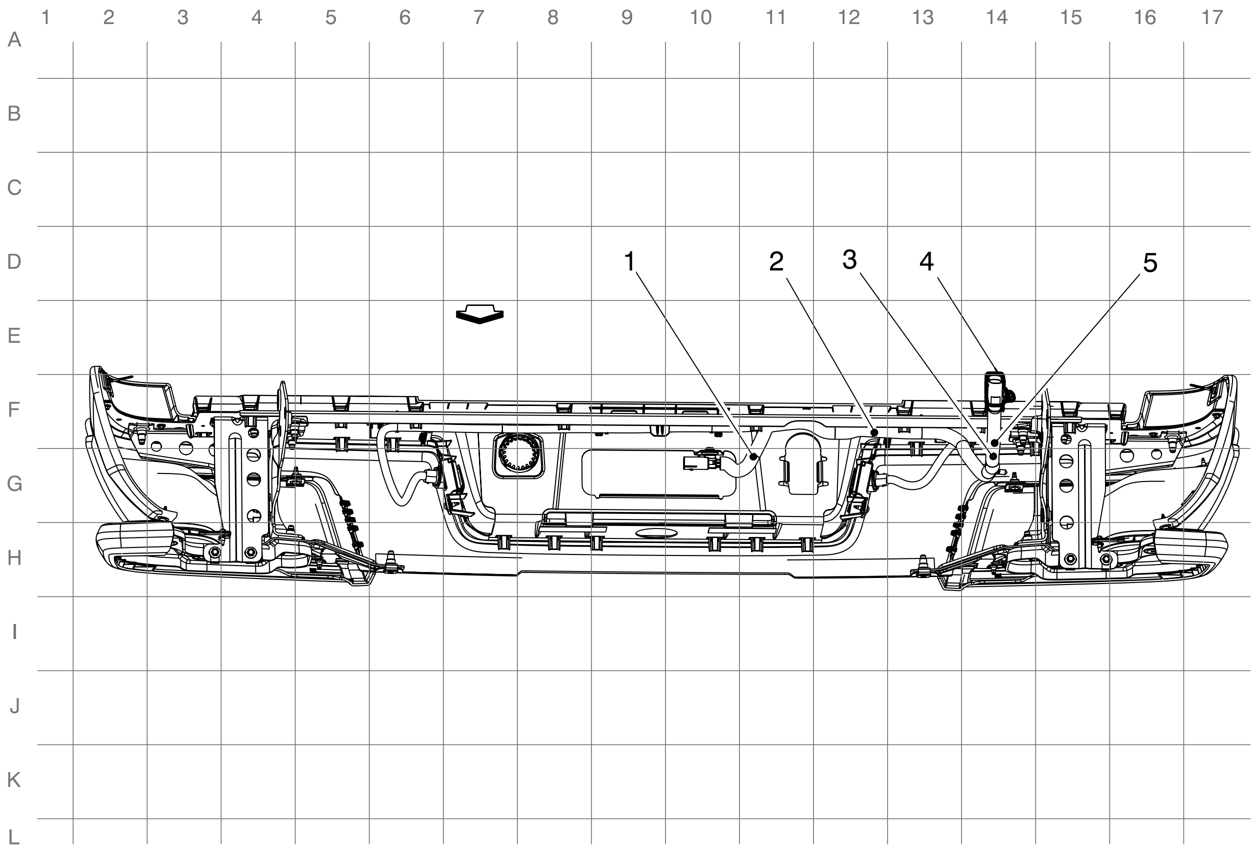
7. J105
8. X103
9. J401
10. J402
11. X420
12. J400
13. X410

Rear License Plate Harness Routing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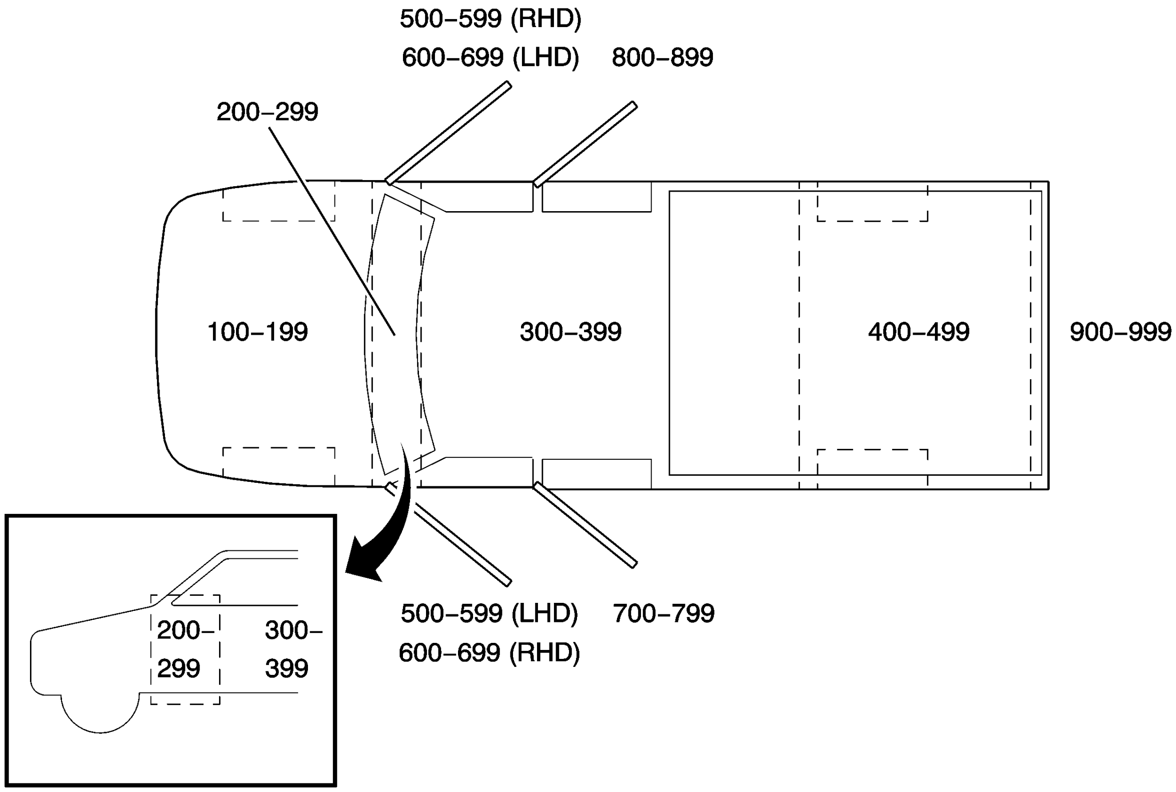
Items

1. J409
2. J408
3. J407
4. X400
5. J406

Vehicle Zoning Strategy

All grounds, in-line connectors, and splices have identifying numbers that correspond to where they are located in the vehicle. The following table explains the numbering system.



Vehicle Zoning Strategy

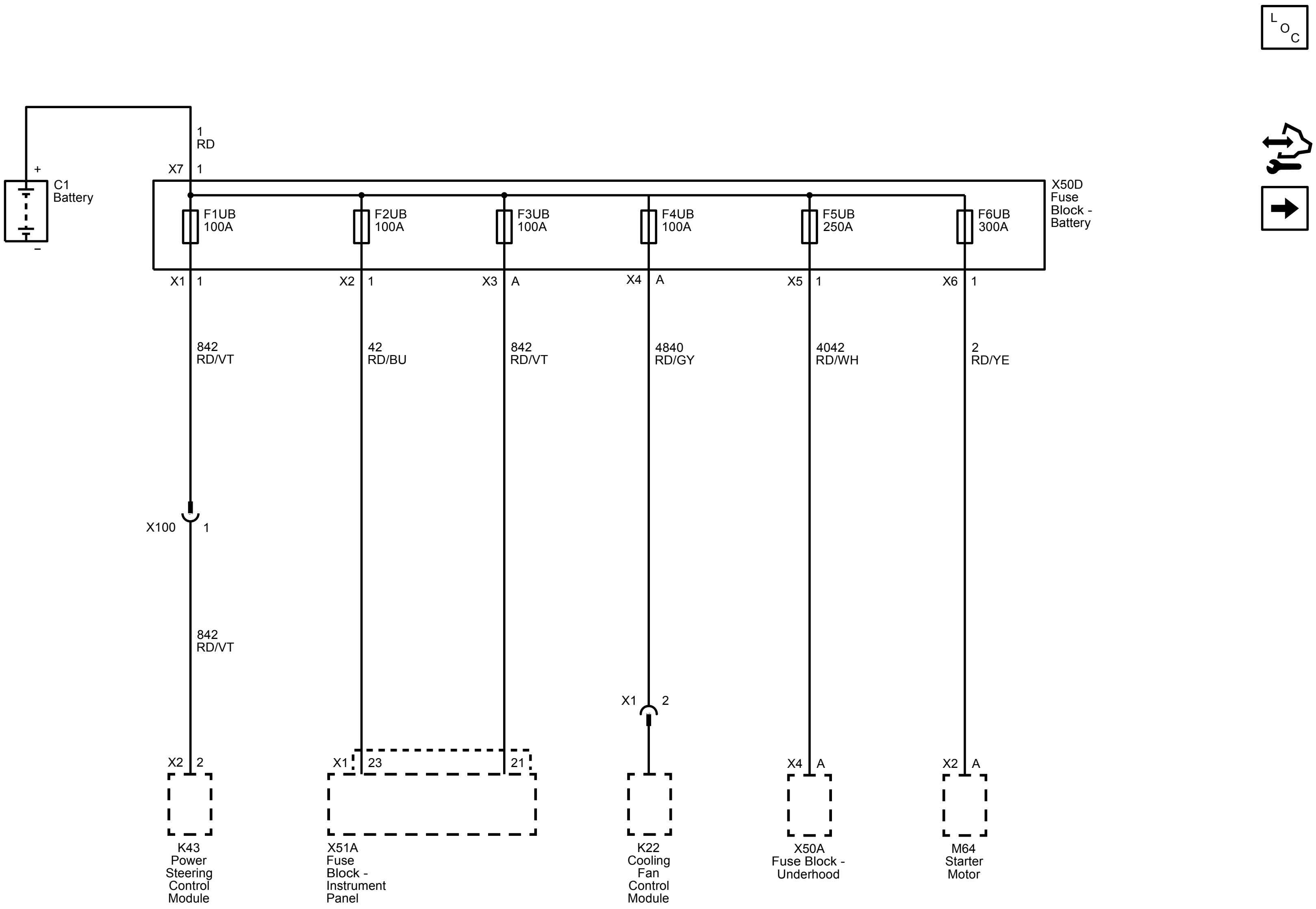
Callout Numbers	Zone Description
100-199	Engine compartment (all forward of the instrument panel)
200-299	Within the instrument panel area (between the bulkhead and the front plane of the instrument panel)
300-399	Passenger compartment (from the instrument panel to the rear of the cab)
400-499	Truck bed/chassis (from the rear of the cab to the rear of the vehicle)
500-599	Inline harness connectors to or within the driver door
600-699	Inline harness connectors to or within the front passenger door
700-799	Inline harness connectors to or within the left rear door
800-899	Inline harness connectors to or within the right rear door
900-999	Inline harness connectors to or within the endgate

Schematics RPO Code List

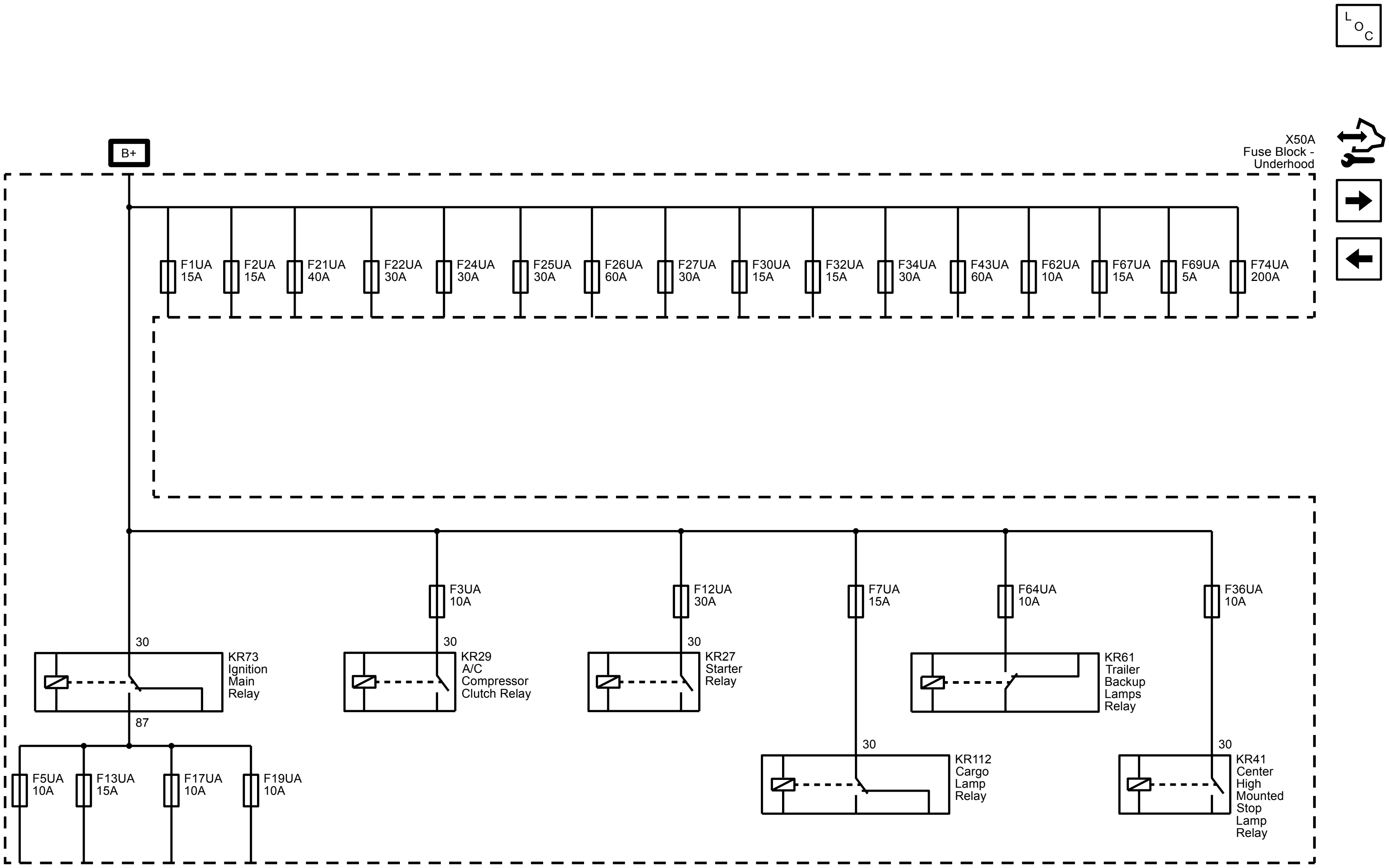
RPO	Option Name	Country Group
43	CREW CAB	U.S.A., PR and USVI (MAH), Canada (MBC)
53	EXTENDED CAB	U.S.A., PR and USVI (MAH), Canada (MBC)
AAQ	ADJUSTER PASS ST-POWER, 4 WAY	U.S.A., PR and USVI (MAH), Canada (MBC)
AH6	ADJUSTER FRT ST-SEAT, POWER, 4 WAY, VERT	U.S.A., PR and USVI (MAH), Canada (MBC)
AL0	SENSOR INDICATOR INFLATABLE RESTRAINT, FRT PASS/CHILD PRESENCE DETECTOR	U.S.A., PR and USVI (MAH), Canada (MBC)
AL9	LUMBAR DRIVER-SEAT, POWER, 2 WAY	U.S.A., PR and USVI (MAH), Canada (MBC)
AT9	LUMBAR PASSENGER-SEAT, POWER, 2 WAY	U.S.A., PR and USVI (MAH), Canada (MBC)
ATG	LOCK CONTROL, ENTRY-REMOTE ENTRY, STANDARD RANGE	U.S.A., PR and USVI (MAH), Canada (MBC)
AXG	WINDOW REG DRVR DR-POWER OPERATED, EXPRESS UP/DOWN	U.S.A., PR and USVI (MAH), Canada (MBC)
C49	DEFOGGER-RR WINDOW, ELECTRIC	U.S.A., PR and USVI (MAH), Canada (MBC)
C74	LAMP-INTR, ROOF, DUAL READING	U.S.A., PR and USVI (MAH), Canada (MBC)
D6I	MIRROR I/S FRT VAN SUNSHADE, DRIVER, W/MIRROR, COVER, HOLDER, ILLUM PASS, W/MIRROR, COVER, ILLUM	U.S.A., PR and USVI (MAH), Canada (MBC)
DD8	MIRROR I/S R/V-LT SENSITIVE	U.S.A., PR and USVI (MAH), Canada (MBC)
DL6	MIRROR O/S-LH and RH, REMOTE CONTROL, ELECTRIC, MANUAL FOLDING, COLOR	U.S.A., PR and USVI (MAH), Canada (MBC)
DL9	MIRROR O/S-LH and RH, REMOTE CONTROL, ELECTRIC, HEATED, CHROME	U.S.A., PR and USVI (MAH), Canada (MBC)
IO3	RADIO-INFOTAINMENT SYSTEM - BASE HMI	U.S.A. and Canada (MBC)
IO4	RADIO-INFOTAINMENT SYSTEM - BASE HMI, ENHANCED CONNECTIVITY	U.S.A., PR and USVI (MAH), Canada (MBC)
IO5	RADIO-INFOTAINMENT SYSTEM - UPLEVEL HMI, ENHANCED CONNECTIVITY	U.S.A., PR and USVI (MAH), Canada (MBC)
IO6	RADIO-INFOTAINMENT SYSTEM - UPLEVEL HMI, ENHANCED CONNECTIVITY, EMBEDDED NAVIGATION	U.S.A., PR and USVI (MAH), Canada (MBC)
K34	CRUISE CONTROL-AUTOMATIC, ELECTRONIC	U.S.A., PR and USVI (MAH), Canada (MBC)
KA1	HEATER SEAT FRT-DRVR and PASS	U.S.A., PR and USVI (MAH), Canada (MBC)
LCV	ENGINE-GAS, 4 CYL, 2.5L, L4, SIDI, DOHC, DCVCP, VVT, E85 MAX, E0-E100, ALUM	U.S.A., PR and USVI (MAH), Canada (MBC)
LFX	ENGINE-GAS, 6 CYL, 3.6L, SIDI, DOHC, VVT, E85 MAX, ALUM, GM	U.S.A., PR and USVI (MAH), Canada (MBC)
MYB	TRANSMISSION-AUTO 6 SPD, 6L50	U.S.A., PR and USVI (MAH), Canada (MBC)
N8D	TRANSMISSION-MAN 6 SPD, 85MM, 4.45 1ST, 2.56 2ND, 1.53 3RD, 1.00 4TH, 0.87 5TH, 0.76 6TH	U.S.A., PR and USVI (MAH), Canada (MBC)
NQ6	TRANSFER CASE-2 SPD, ACTIVE, PART TIME 4WD, L/H DROP, LOW RATIO 2.72:1	U.S.A., PR and USVI (MAH), Canada (MBC)

NQ7	TRANSFER CASE-2 SPD, SWITCH ACTIVATED, PART TIME 4WD, L/H DROP, LOW RATIO 2.72:1	U.S.A., PR and USVI (MAH), Canada (MBC)
T3U	LAMP FRT FOG-FRT FOG	U.S.A., PR and USVI (MAH), Canada (MBC)
TCA	LAMP-DOME, CENTER	U.S.A., PR and USVI (MAH), Canada (MBC)
TG5	PLAYER-COMPACT DISC AND MP3	U.S.A., PR and USVI (MAH), Canada (MBC)
TR0	LAMP-INTR, ROOF, RR, COURTESY and DUAL READING	U.S.A., PR and USVI (MAH), Canada (MBC)
U2M	DIGITAL AUDIO SYSTEM-S-BAND AND HD	U.S.A., PR and USVI (MAH), Canada (MBC)
UDD	DISPLAY INSTRUMENT-DRIVER INFO ENHANCED (MULTI COLOR STANDARD GRAPHIC)	U.S.A., PR and USVI (MAH), Canada (MBC)
UE1	COMMUNICATION SYSTEM-VEHICLE, ONSTAR	U.S.A., PR and USVI (MAH), Canada (MBC)
UEU	SENSOR INDICATOR-FORWARD COLLISION ALERT	U.S.A., PR and USVI (MAH), Canada (MBC)
UFL	LANE ACTIVE SAFETY-DEPARTURE WARNING	U.S.A., PR and USVI (MAH), Canada (MBC)
UQA	SPEAKER SYSTEM-PREMIUM AUDIO BRANDED WITH AMPLIFIER	U.S.A., PR and USVI (MAH), Canada (MBC)
UVC	VISION-REAR VIEW, MONO	U.S.A., PR and USVI (MAH), Canada (MBC)
W1Y	CONTROL-STEERING WHEEL, RADIO, REDUNDANT CONTROLS	U.S.A., PR and USVI (MAH), Canada (MBC)
Z82	TRAILER PROVISIONS-SPECIAL EQUIPMENT, H.D.	U.S.A., PR and USVI (MAH), Canada (MBC)
Z88	MARKET BRAND-GMC	U.S.A., PR and USVI (MAH), Canada (MBC)

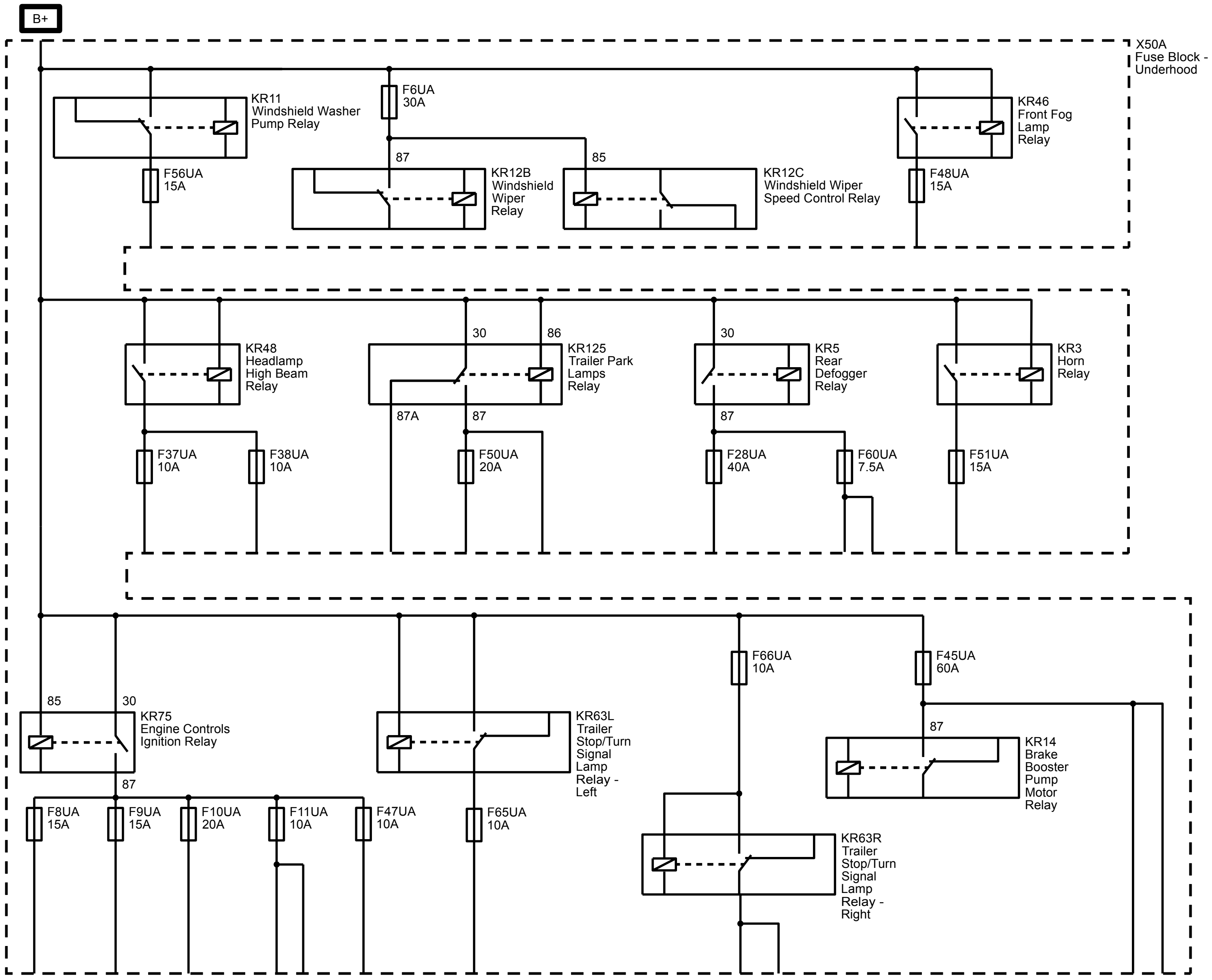
B+ Bus X50D Fuse Block - Battery


L O C
C1
Battery
+
−
1
RD
X7 1
X50D
Fuse
Block -
Battery
F1UB
100A
F2UB
100A
F3UB
100A
F4UB
100A
F5UB
250A
F6UB
300A
X1 1
X2 1
X3 A
X4 A
X5 1
X6 1
842
RD/VT
42
RD/BU
842
RD/VT
4840
RD/GY
4042
RD/WH
2
RD/YE
X100 1
842
RD/VT
X1 2
X2 2
X1 23
21
X4 A
X2 A
K43
Power
Steering
Control
Module
X51A
Fuse
Block -
Instrument
Panel
K22
Cooling
Fan
Control
Module
X50A
Fuse Block -
Underhood
M64
Starter
Motor

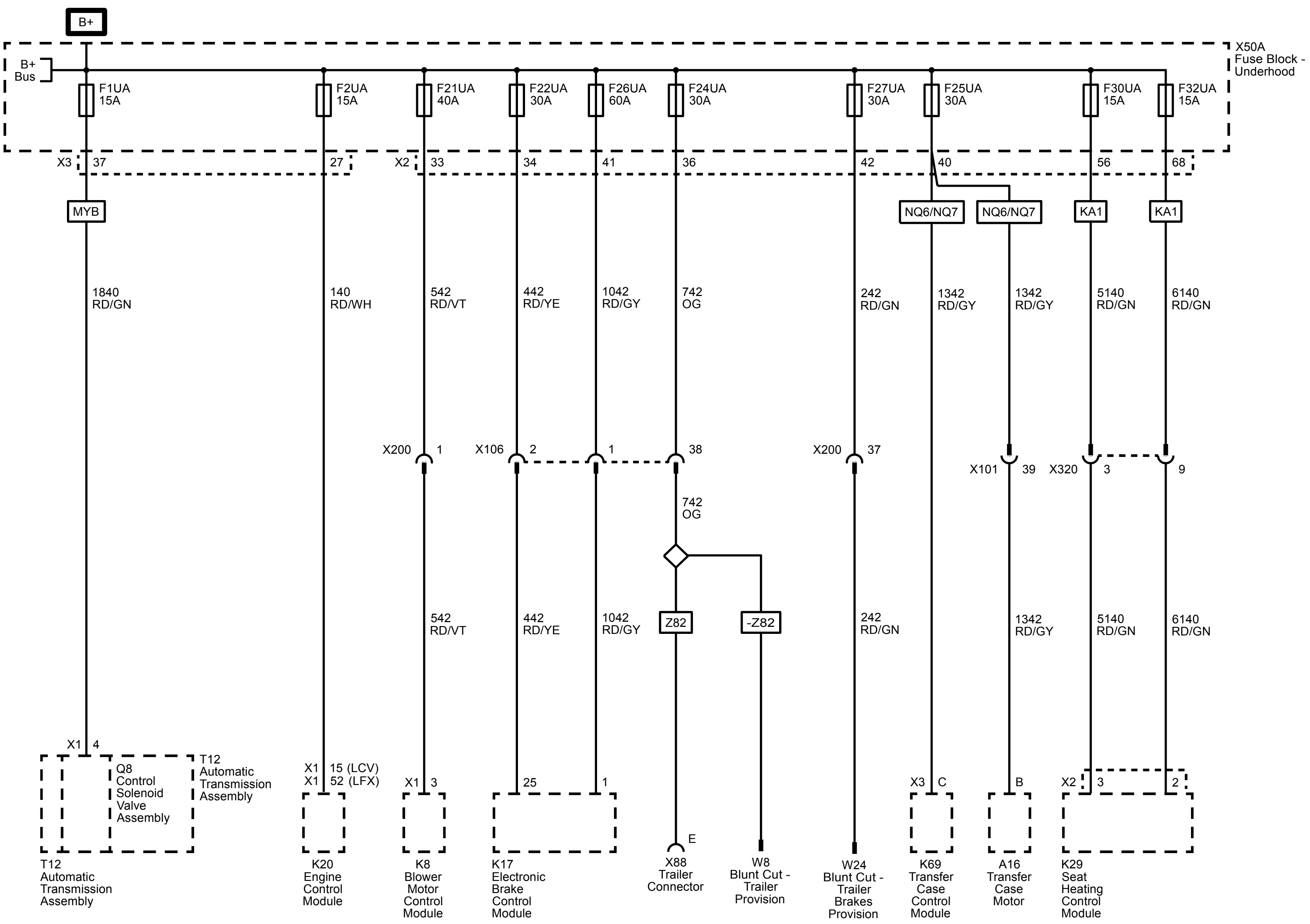
B+ Bus X50A Fuse Block - Underhood (1 of 2)


L O C
B+
X50A
Fuse Block - Underhood
F1UA 15A
F2UA 15A
F21UA 40A
F22UA 30A
F24UA 30A
F25UA 30A
F26UA 60A
F27UA 30A
F30UA 15A
F32UA 15A
F34UA 30A
F43UA 60A
F62UA 10A
F67UA 15A
F69UA 5A
F74UA 200A
F3UA 10A
F12UA 30A
F7UA 15A
F64UA 10A
F36UA 10A
30
KR73 Ignition Main Relay
87
30
KR29 A/C Compressor Clutch Relay
30
KR27 Starter Relay
KR61 Trailer Backup Lamps Relay
30
KR112 Cargo Lamp Relay
30
KR41 Center High Mounted Stop Lamp Relay
F5UA 10A
F13UA 15A
F17UA 10A
F19UA 10A

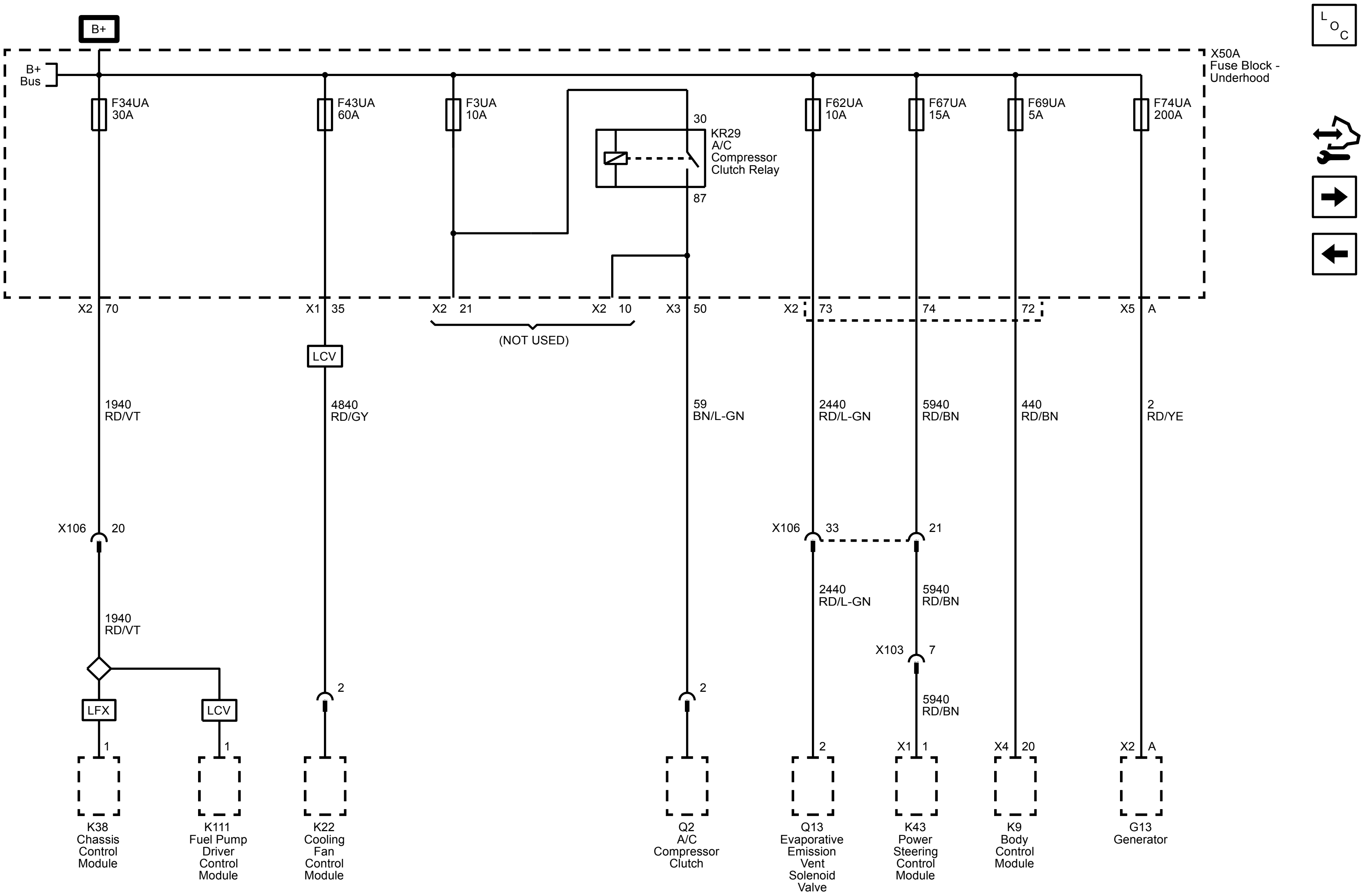
B+ Bus X50A Fuse Block - Underhood (2 of 2)


B+
X50A
Fuse Block -
Underhood
KR11
Windshield Washer
Pump Relay
F56UA
15A
F6UA
30A
87
KR12B
Windshield
Wiper
Relay
85
KR12C
Windshield Wiper
Speed Control Relay
KR46
Front Fog
Lamp
Relay
F48UA
15A
KR48
Headlamp
High Beam
Relay
F37UA
10A
F38UA
10A
30
86
KR125
Trailer Park
Lamps
Relay
87A
87
F50UA
20A
30
KR5
Rear
Defogger
Relay
87
F28UA
40A
F60UA
7.5A
KR3
Horn
Relay
F51UA
15A
85
30
KR75
Engine Controls
Ignition Relay
87
F8UA
15A
F9UA
15A
F10UA
20A
F11UA
10A
F47UA
10A
KR63L
Trailer
Stop/Turn
Signal
Lamp
Relay -
Left
F65UA
10A
F66UA
10A
F45UA
60A
87
KR14
Brake
Booster
Pump
Motor
Relay
KR63R
Trailer
Stop/Turn
Signal
Lamp
Relay -
Right

F1UA, F2UA, F21UA, F22UA, F24UA, F25UA, F26UA, F27UA, F30UA, and F32UA Fuses

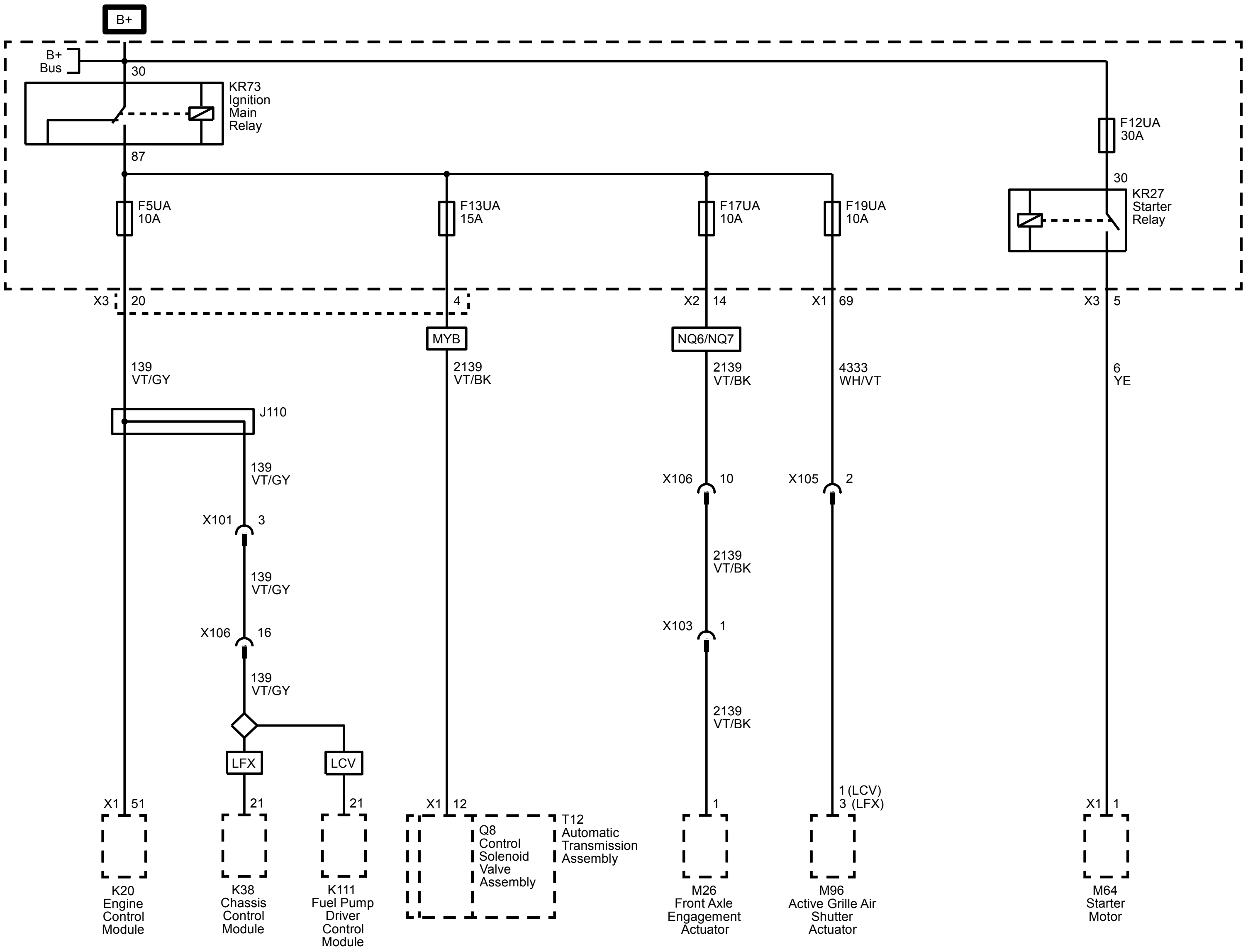

B+
B+ Bus
X50A Fuse Block - Underhood
F1UA 15A
F2UA 15A
F21UA 40A
F22UA 30A
F26UA 60A
F24UA 30A
F27UA 30A
F25UA 30A
F30UA 15A
F32UA 15A
X3
37
27
X2
33
34
41
36
42
40
56
68
MYB
NQ6/NQ7
NQ6/NQ7
KA1
KA1
1840 RD/GN
140 RD/WH
542 RD/VT
442 RD/YE
1042 RD/GY
742 OG
242 RD/GN
1342 RD/GY
1342 RD/GY
5140 RD/GN
6140 RD/GN
X200
1
X106
2
1
38
X200
37
X101
39
X320
3
9
742 OG
Z82
-Z82
542 RD/VT
442 RD/YE
1042 RD/GY
242 RD/GN
1342 RD/GY
5140 RD/GN
6140 RD/GN
X1
4
Q8 Control Solenoid Valve Assembly
T12 Automatic Transmission Assembly
X1 15 (LCV)
X1 52 (LFX)
X1
3
25
1
E
X3
C
B
X2
3
2
T12 Automatic Transmission Assembly
K20 Engine Control Module
K8 Blower Motor Control Module
K17 Electronic Brake Control Module
X88 Trailer Connector
W8 Blunt Cut - Trailer Provision
W24 Blunt Cut - Trailer Brakes Provision
K69 Transfer Case Control Module
A16 Transfer Case Motor
K29 Seat Heating Control Module

F3UA, F34UA, F43UA, F62UA, F67UA, F69UA, and F74UA Fuses

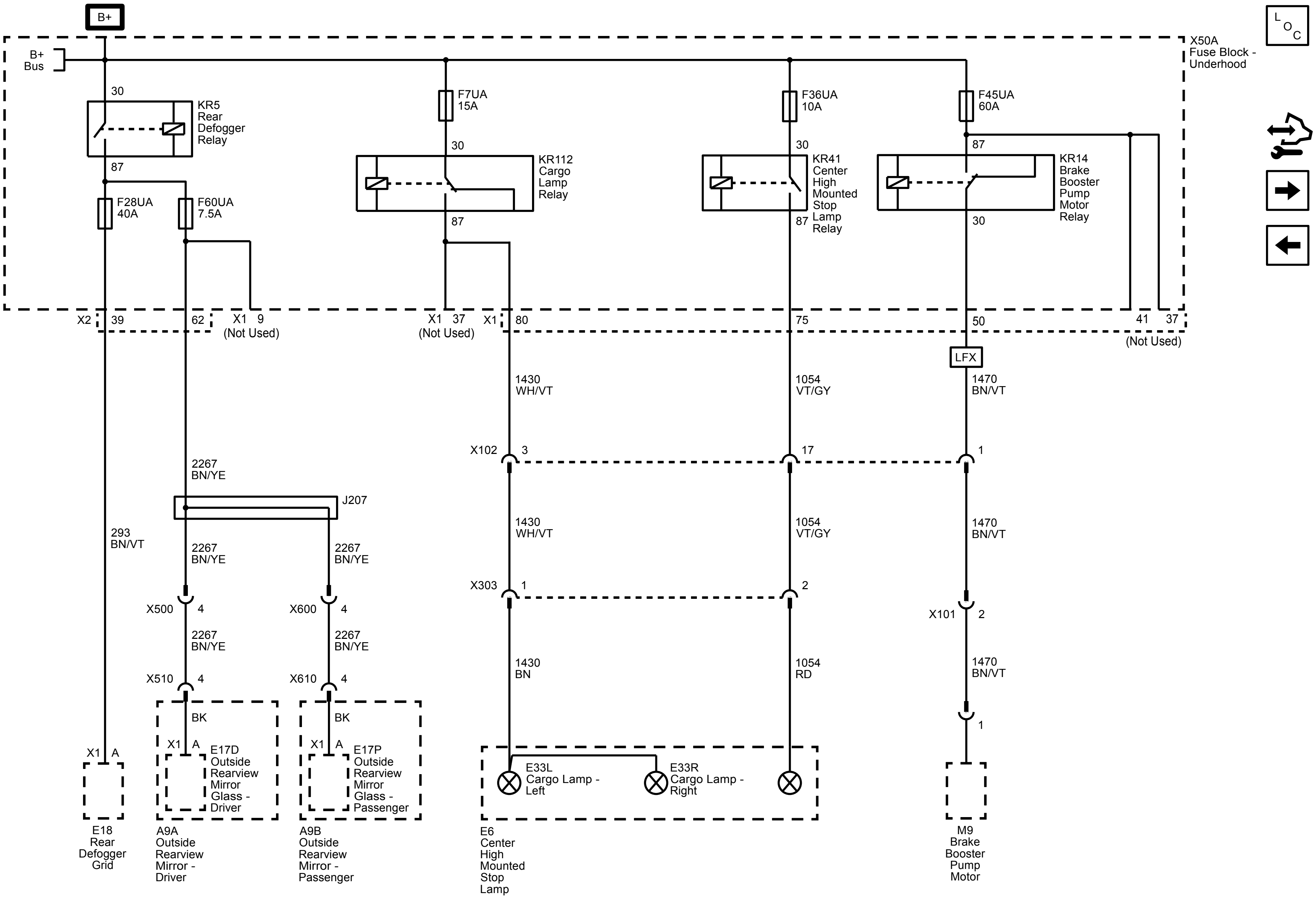


B+
B+ Bus
X50A Fuse Block - Underhood
F34UA 30A
F43UA 60A
F3UA 10A
30
KR29 A/C Compressor Clutch Relay
87
F62UA 10A
F67UA 15A
F69UA 5A
F74UA 200A
X2 70
X1 35
X2 21
X2 10
(NOT USED)
X3 50
X2 73
74
72
X5 A
LCV
1940 RD/VT
4840 RD/GY
59 BN/L-GN
2440 RD/L-GN
5940 RD/BN
440 RD/BN
2 RD/YE
X106 20
X106 33
21
1940 RD/VT
2440 RD/L-GN
5940 RD/BN
X103 7
5940 RD/BN
2
2
LFX
LCV
1
1
2
X1 1
X4 20
X2 A
K38 Chassis Control Module
K111 Fuel Pump Driver Control Module
K22 Cooling Fan Control Module
Q2 A/C Compressor Clutch
Q13 Evaporative Emission Vent Solenoid Valve
K43 Power Steering Control Module
K9 Body Control Module
G13 Generator
LOC

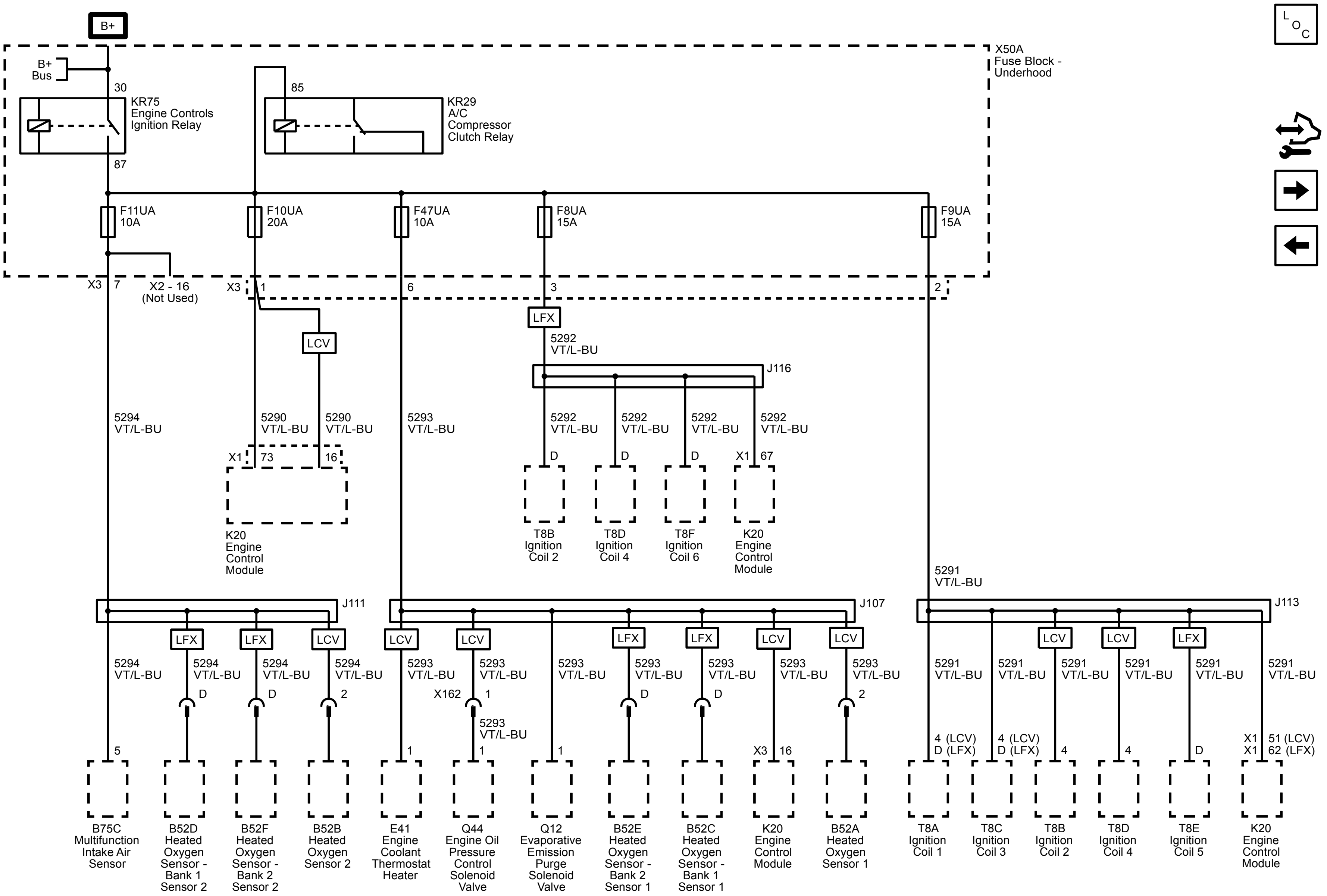
F5UA, F12UA, F13UA, F17UA, and F19UA Fuses


B+
B+ Bus
30
KR73 Ignition Main Relay
87
X50A Fuse Block - Underhood
F12UA 30A
30
KR27 Starter Relay
F5UA 10A
F13UA 15A
F17UA 10A
F19UA 10A
X3 20
4
X2 14
X1 69
X3 5
MYB
NQ6/NQ7
139 VT/GY
2139 VT/BK
2139 VT/BK
4333 WH/VT
6 YE
J110
139 VT/GY
X106 10
X105 2
X101 3
139 VT/GY
2139 VT/BK
X106 16
X103 1
139 VT/GY
2139 VT/BK
LFX
LCV
X1 51
21
21
X1 12
1
1 (LCV)
3 (LFX)
X1 1
Q8 Control Solenoid Valve Assembly
T12 Automatic Transmission Assembly
K20 Engine Control Module
K38 Chassis Control Module
K111 Fuel Pump Driver Control Module
M26 Front Axle Engagement Actuator
M96 Active Grille Air Shutter Actuator
M64 Starter Motor

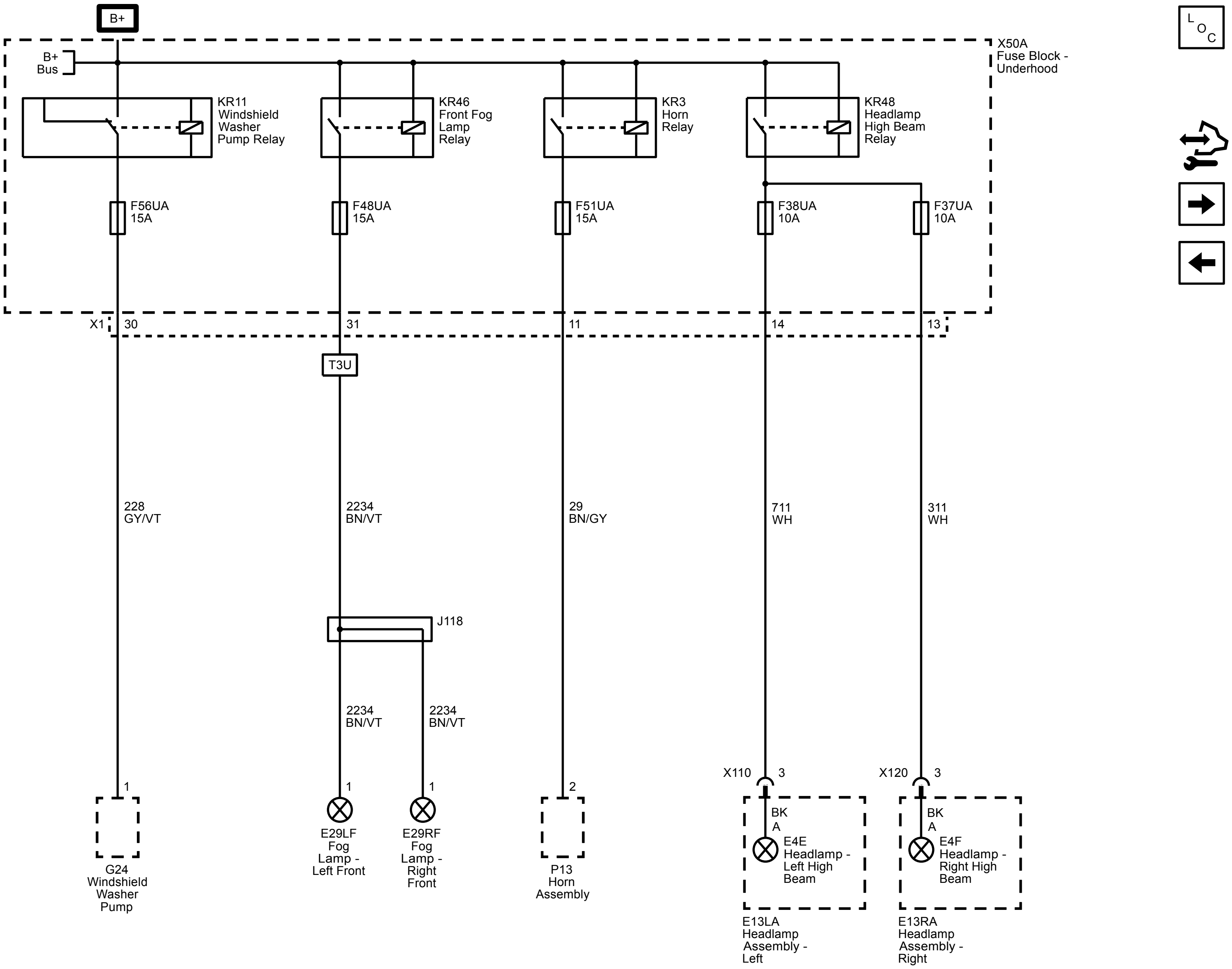
F7UA, F28UA, F36UA, F45UA, and F60UA Fuses


B+
B+ Bus
X50A Fuse Block - Underhood
L O C
30
KR5 Rear Defogger Relay
87
F28UA 40A
F60UA 7.5A
F7UA 15A
30
KR112 Cargo Lamp Relay
87
F36UA 10A
30
KR41 Center High Mounted Stop Lamp Relay
87
F45UA 60A
87
KR14 Brake Booster Pump Motor Relay
30
X2 39
62
X1 9 (Not Used)
X1 37 (Not Used)
X1 80
75
50
41 37 (Not Used)
LFX
1430 WH/VT
1054 VT/GY
1470 BN/VT
X102 3
17
1
2267 BN/YE
J207
293 BN/VT
2267 BN/YE
2267 BN/YE
1430 WH/VT
1054 VT/GY
1470 BN/VT
X303 1
2
X500 4
X600 4
X101 2
2267 BN/YE
2267 BN/YE
X510 4
X610 4
1430 BN
1054 RD
1470 BN/VT
1
BK
BK
X1 A
X1 A
E17D Outside Rearview Mirror Glass - Driver
X1 A
E17P Outside Rearview Mirror Glass - Passenger
E33L Cargo Lamp - Left
E33R Cargo Lamp - Right
E18 Rear Defogger Grid
A9A Outside Rearview Mirror - Driver
A9B Outside Rearview Mirror - Passenger
E6 Center High Mounted Stop Lamp
M9 Brake Booster Pump Motor

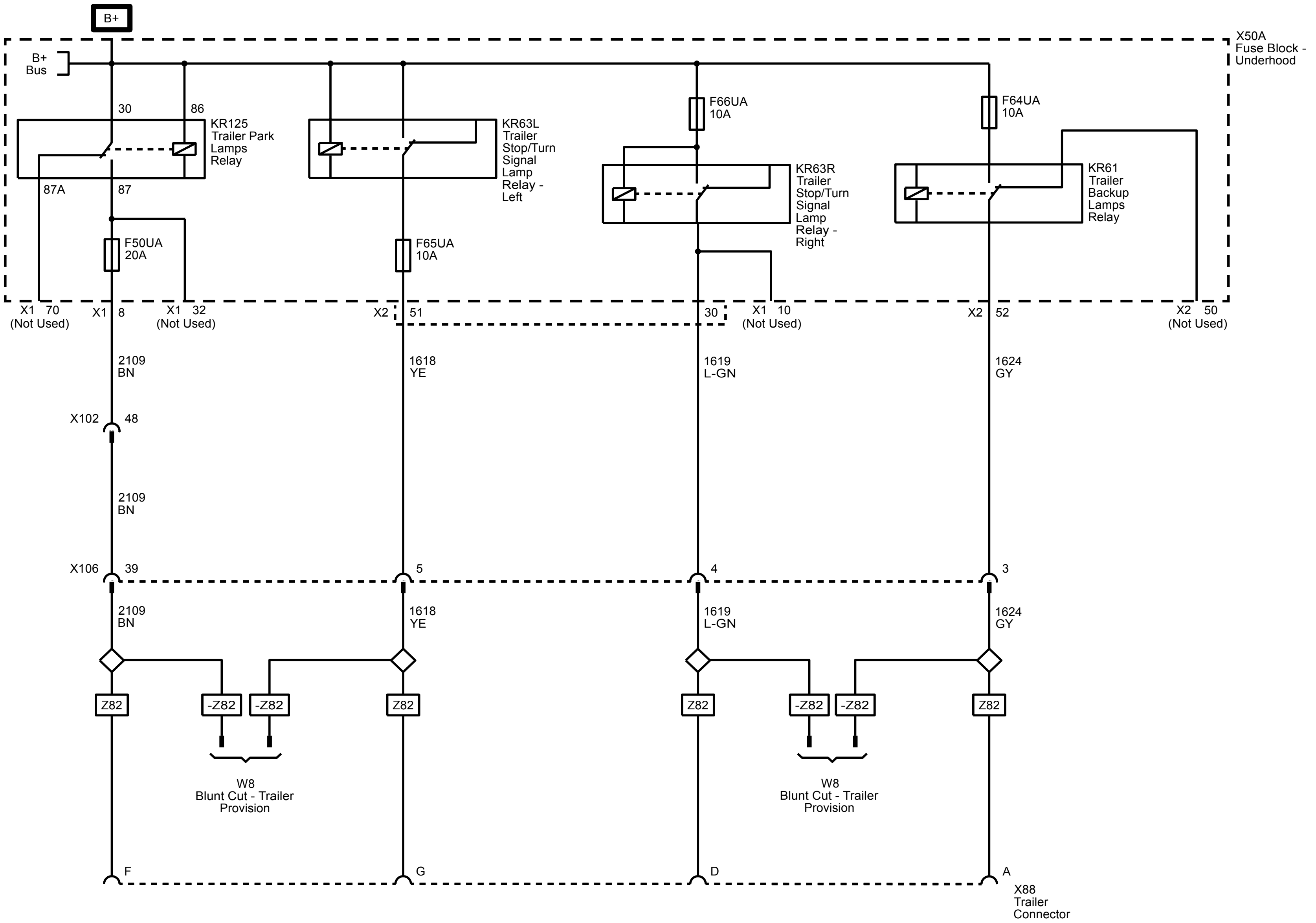
F8UA, F9UA, F10UA, F11UA, and F47UA Fuses


B+
B+ Bus
30
KR75 Engine Controls Ignition Relay
87
85
KR29 A/C Compressor Clutch Relay
X50A Fuse Block - Underhood
L O C
F11UA 10A
F10UA 20A
F47UA 10A
F8UA 15A
F9UA 15A
X3 7
X2 - 16 (Not Used)
X3 1
6
3
2
LCV
LFX
5292 VT/L-BU
J116
5294 VT/L-BU
5290 VT/L-BU
5290 VT/L-BU
5293 VT/L-BU
5292 VT/L-BU
5292 VT/L-BU
5292 VT/L-BU
5292 VT/L-BU
X1 73
16
K20 Engine Control Module
D
D
D
X1 67
T8B Ignition Coil 2
T8D Ignition Coil 4
T8F Ignition Coil 6
K20 Engine Control Module
5291 VT/L-BU
J111
J107
J113
LFX
LFX
LCV
LCV
LCV
LFX
LFX
LCV
LCV
LCV
LCV
LFX
5294 VT/L-BU
5294 VT/L-BU
5294 VT/L-BU
5294 VT/L-BU
5293 VT/L-BU
5293 VT/L-BU
5293 VT/L-BU
5293 VT/L-BU
5293 VT/L-BU
5293 VT/L-BU
5293 VT/L-BU
5291 VT/L-BU
5291 VT/L-BU
5291 VT/L-BU
5291 VT/L-BU
5291 VT/L-BU
5291 VT/L-BU
D
D
2
X162 1
5293 VT/L-BU
D
D
2
5
1
1
1
X3 16
4 (LCV) D (LFX)
4 (LCV) D (LFX)
4
4
D
X1 51 (LCV)
X1 62 (LFX)
B75C Multifunction Intake Air Sensor
B52D Heated Oxygen Sensor - Bank 1 Sensor 2
B52F Heated Oxygen Sensor - Bank 2 Sensor 2
B52B Heated Oxygen Sensor 2
E41 Engine Coolant Thermostat Heater
Q44 Engine Oil Pressure Control Solenoid Valve
Q12 Evaporative Emission Purge Solenoid Valve
B52E Heated Oxygen Sensor - Bank 2 Sensor 1
B52C Heated Oxygen Sensor - Bank 1 Sensor 1
K20 Engine Control Module
B52A Heated Oxygen Sensor 1
T8A Ignition Coil 1
T8C Ignition Coil 3
T8B Ignition Coil 2
T8D Ignition Coil 4
T8E Ignition Coil 5
K20 Engine Control Module

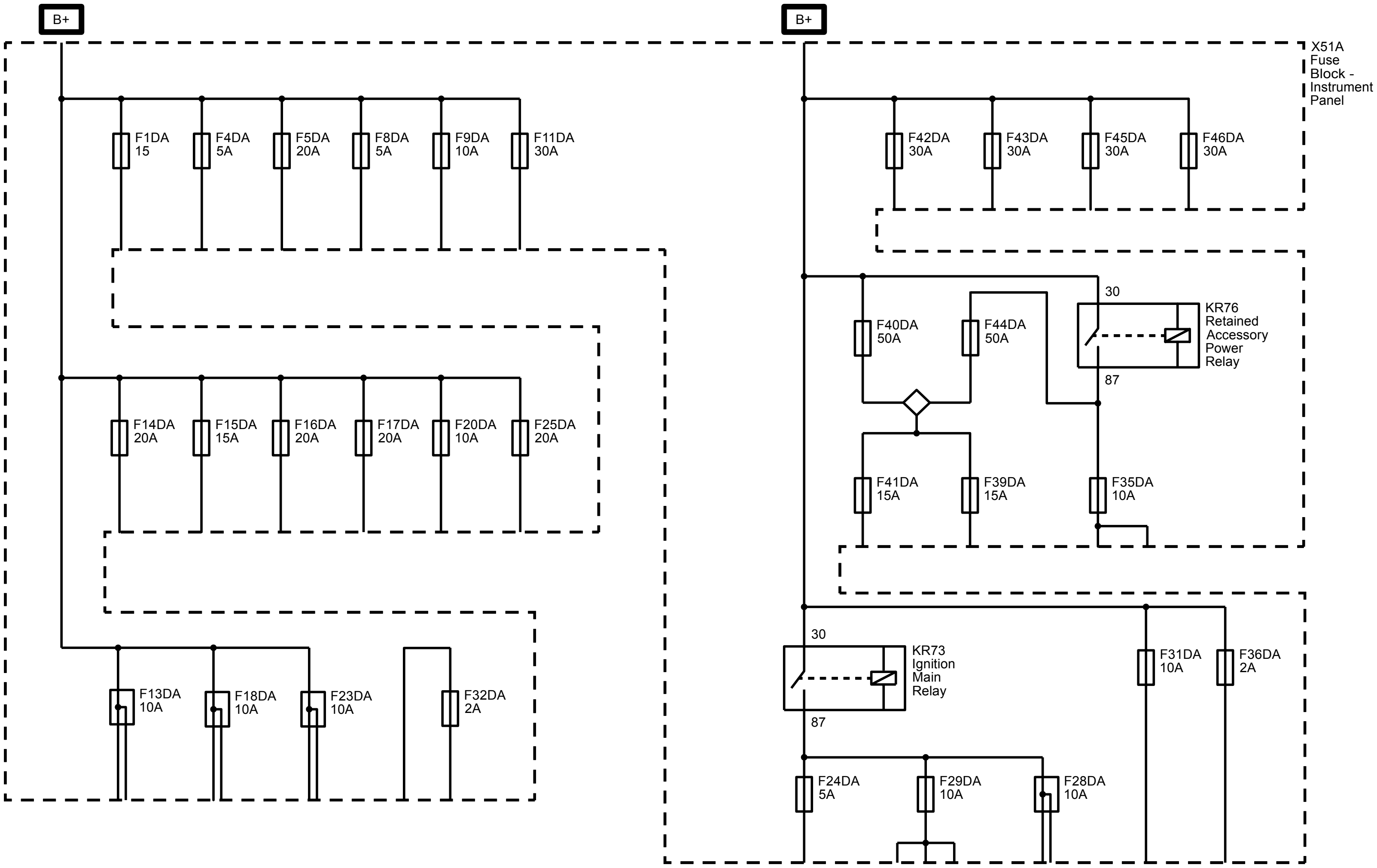
F37UA, F38UA, F48UA, F51UA, and F56UA Fuses


B+
B+ Bus
X50A Fuse Block - Underhood
KR11 Windshield Washer Pump Relay
KR46 Front Fog Lamp Relay
KR3 Horn Relay
KR48 Headlamp High Beam Relay
F56UA 15A
F48UA 15A
F51UA 15A
F38UA 10A
F37UA 10A
X1
30
31
11
14
13
T3U
228 GY/VT
2234 BN/VT
29 BN/GY
711 WH
311 WH
J118
2234 BN/VT
2234 BN/VT
1
1
1
2
X110
3
X120
3
BK
A
BK
A
E4E Headlamp - Left High Beam
E4F Headlamp - Right High Beam
G24 Windshield Washer Pump
E29LF Fog Lamp - Left Front
E29RF Fog Lamp - Right Front
P13 Horn Assembly
E13LA Headlamp Assembly - Left
E13RA Headlamp Assembly - Right
LOC

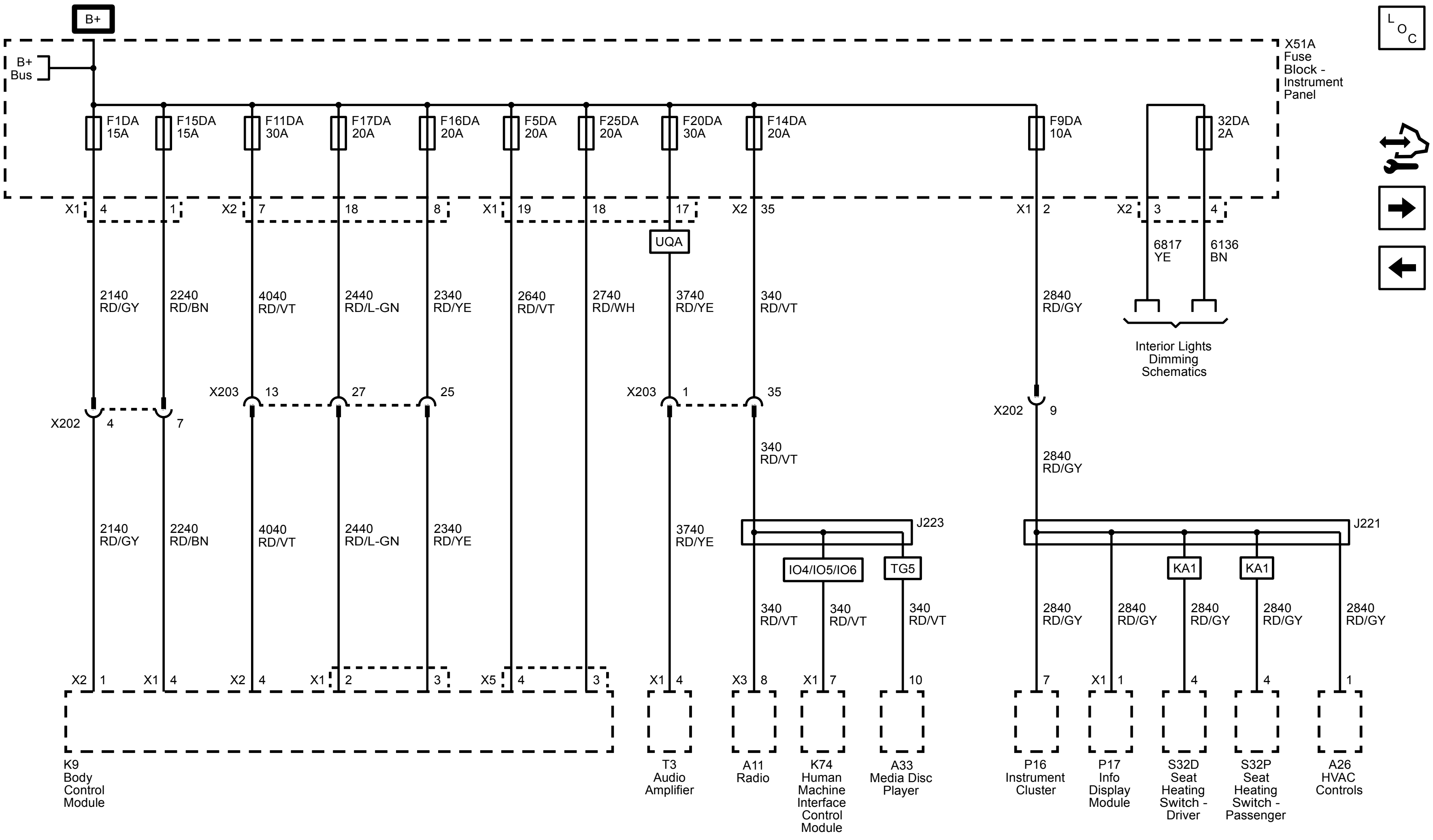
F50UA, F64UA, F65UA, and F66UA Fuses


B+
B+ Bus
X50A Fuse Block - Underhood
30
86
KR125 Trailer Park Lamps Relay
87A
87
KR63L Trailer Stop/Turn Signal Lamp Relay - Left
F66UA 10A
F64UA 10A
KR63R Trailer Stop/Turn Signal Lamp Relay - Right
KR61 Trailer Backup Lamps Relay
F50UA 20A
F65UA 10A
X1 70 (Not Used)
X1 8
X1 32 (Not Used)
X2 51
30
X1 10 (Not Used)
X2 52
X2 50 (Not Used)
2109 BN
1618 YE
1619 L-GN
1624 GY
X102 48
2109 BN
X106 39
5
4
3
2109 BN
1618 YE
1619 L-GN
1624 GY
Z82
-Z82
-Z82
Z82
Z82
-Z82
-Z82
Z82
W8 Blunt Cut - Trailer Provision
W8 Blunt Cut - Trailer Provision
F
G
D
A
X88 Trailer Connector

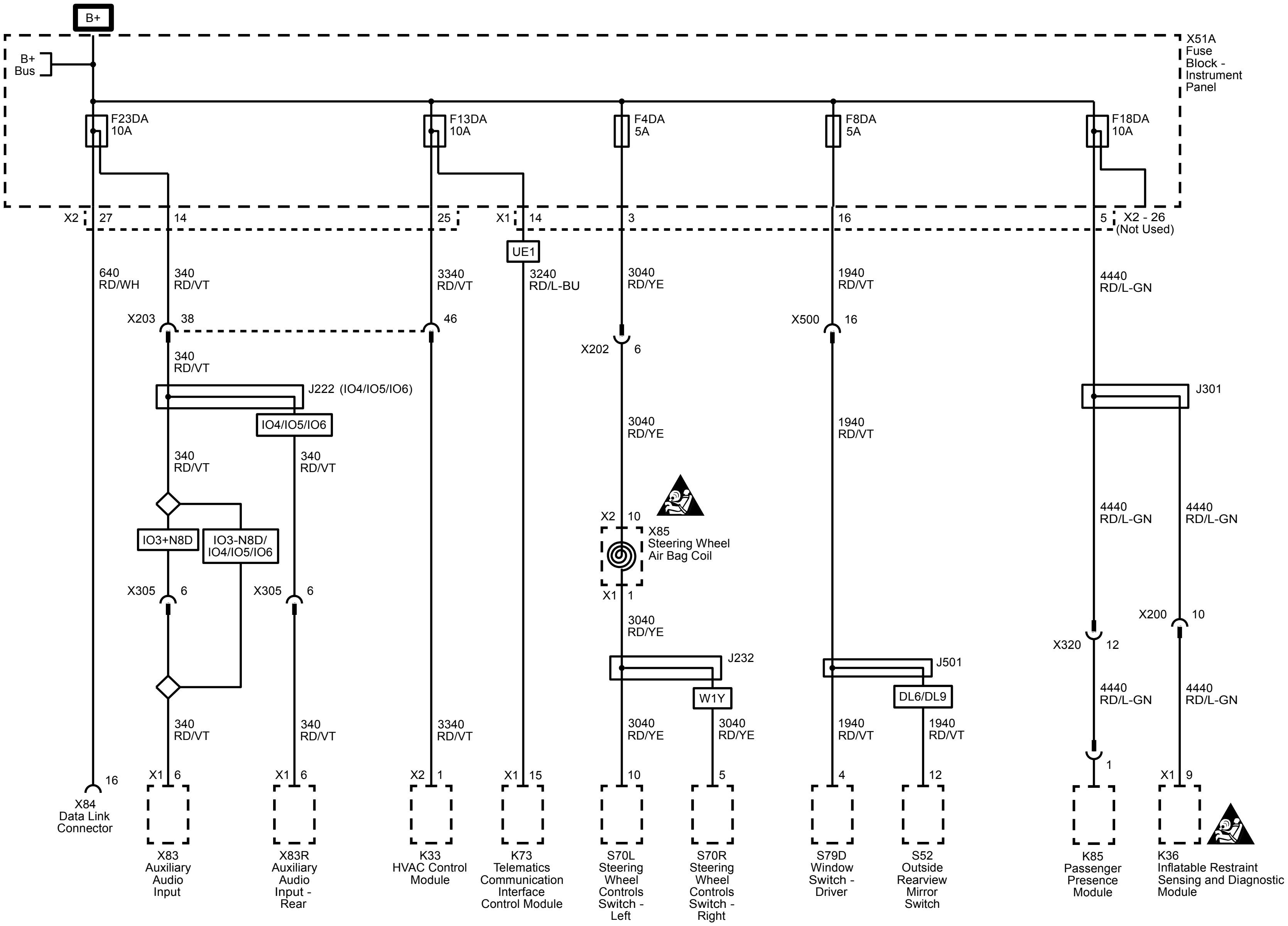
X51A Fuse Block - Instrument Panel Bussing


B+
B+
X51A
Fuse
Block -
Instrument
Panel
F1DA
15
F4DA
5A
F5DA
20A
F8DA
5A
F9DA
10A
F11DA
30A
F14DA
20A
F15DA
15A
F16DA
20A
F17DA
20A
F20DA
10A
F25DA
20A
F13DA
10A
F18DA
10A
F23DA
10A
F32DA
2A
F42DA
30A
F43DA
30A
F45DA
30A
F46DA
30A
F40DA
50A
F44DA
50A
30
KR76
Retained
Accessory
Power
Relay
87
F41DA
15A
F39DA
15A
F35DA
10A
30
KR73
Ignition
Main
Relay
87
F31DA
10A
F36DA
2A
F24DA
5A
F29DA
10A
F28DA
10A

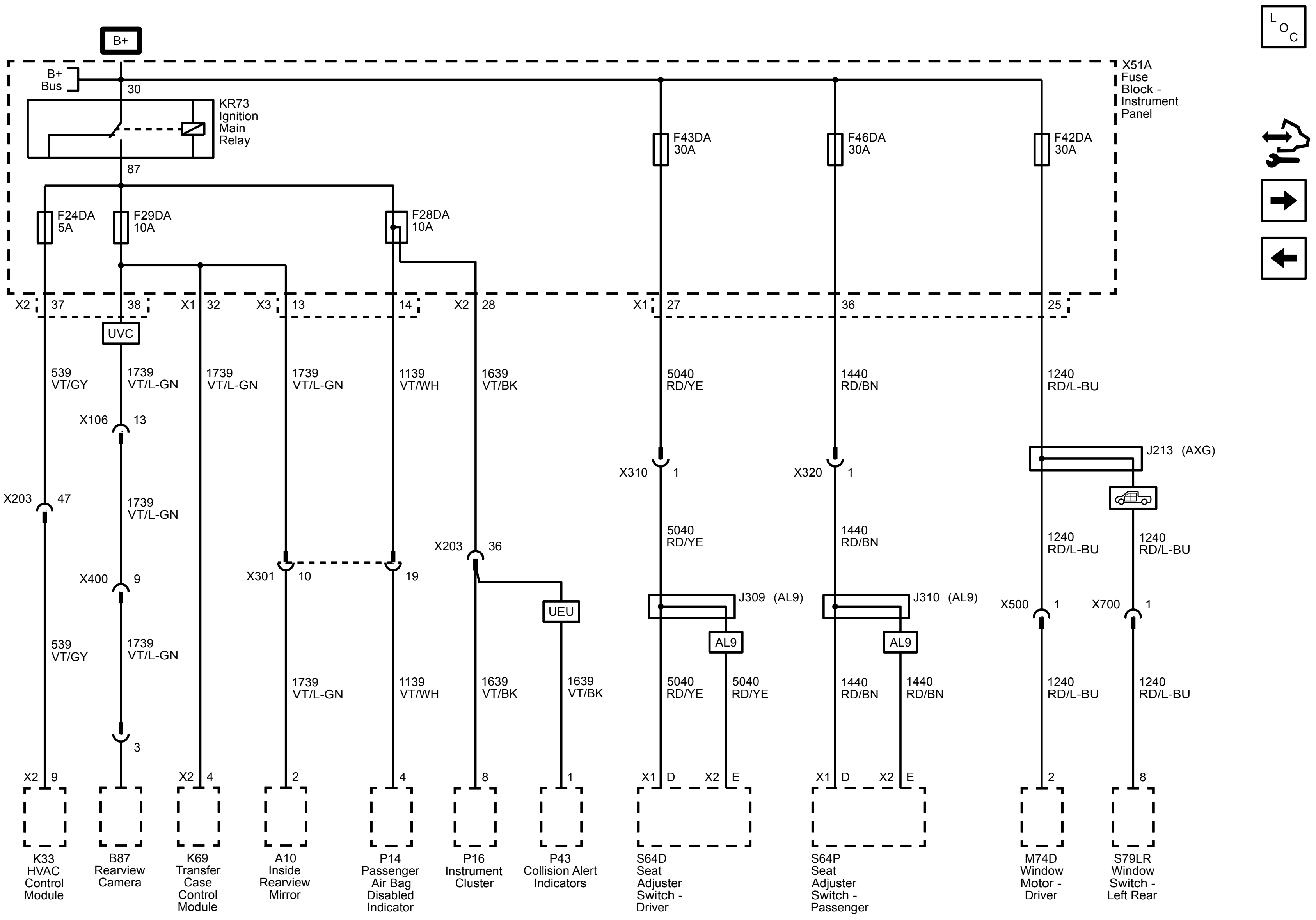
F1DA, F5DA, F9DA, F11DA, F14DA, F15DA, F16DA, F17DA, F20DA, F25DA, and F32DA Fuses


B+
B+ Bus
X51A Fuse Block - Instrument Panel
L O C
F1DA 15A
F15DA 15A
F11DA 30A
F17DA 20A
F16DA 20A
F5DA 20A
F25DA 20A
F20DA 30A
F14DA 20A
F9DA 10A
32DA 2A
X1 4
1
X2 7
18
8
X1 19
18
17
X2 35
X1 2
X2 3
4
UQA
6817 YE
6136 BN
Interior Lights Dimming Schematics
2140 RD/GY
2240 RD/BN
4040 RD/VT
2440 RD/L-GN
2340 RD/YE
2640 RD/VT
2740 RD/WH
3740 RD/YE
340 RD/VT
2840 RD/GY
X202 4
7
X203 13
27
25
X203 1
35
X202 9
J223
J221
IO4/IO5/IO6
TG5
KA1
KA1
X2 1
X1 4
X2 4
X1 2
3
X5 4
3
X1 4
X3 8
X1 7
10
7
X1 1
4
4
1
K9 Body Control Module
T3 Audio Amplifier
A11 Radio
K74 Human Machine Interface Control Module
A33 Media Disc Player
P16 Instrument Cluster
P17 Info Display Module
S32D Seat Heating Switch - Driver
S32P Seat Heating Switch - Passenger
A26 HVAC Controls

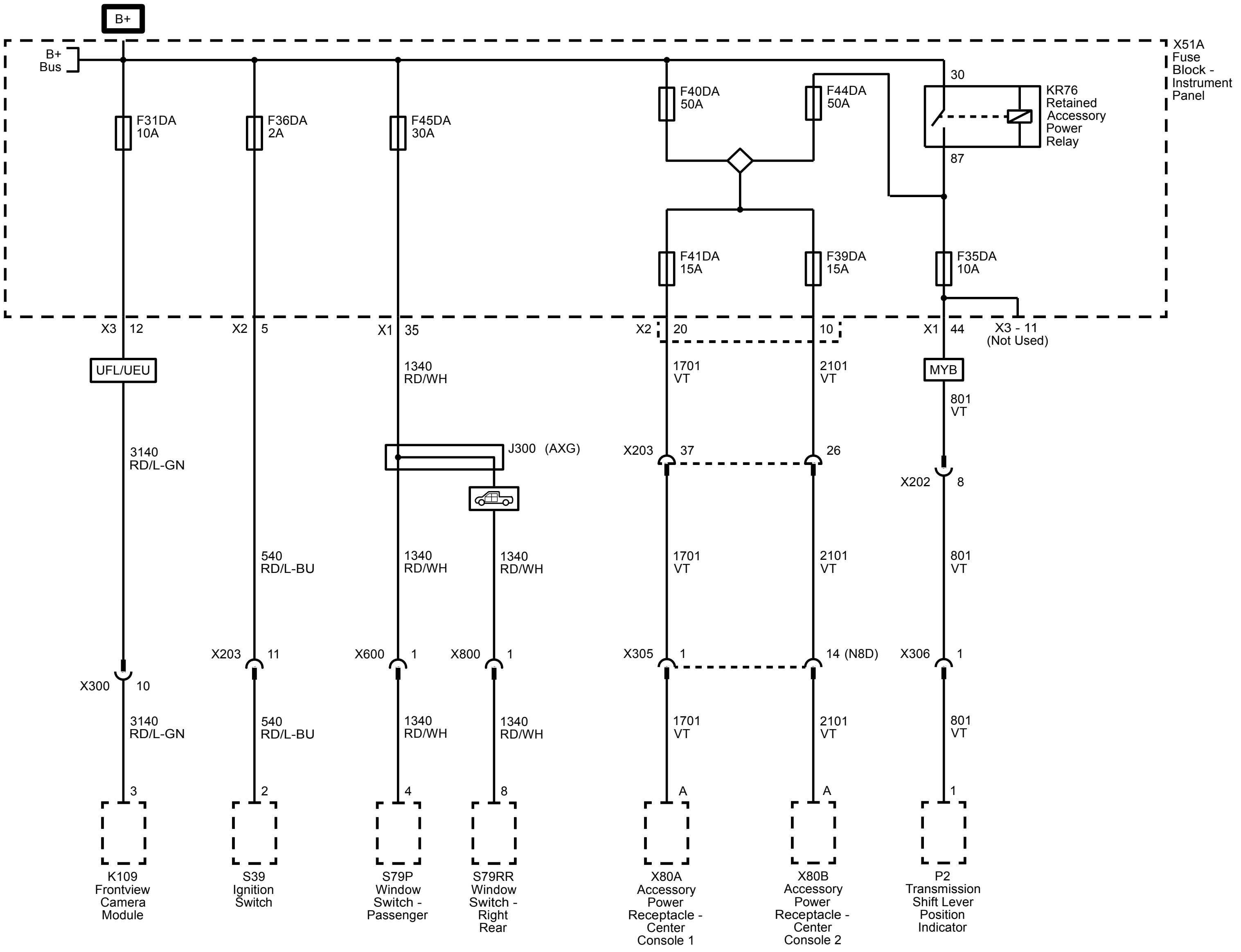
F4DA, F8DA, F13DA, F18DA, F23DA, and F32DA Fuses


B+
B+ Bus
X51A Fuse Block - Instrument Panel
F23DA 10A
F13DA 10A
F4DA 5A
F8DA 5A
F18DA 10A
X2 27
14
25
X1 14
3
16
5
X2 - 26 (Not Used)
UE1
640 RD/WH
340 RD/VT
3340 RD/VT
3240 RD/L-BU
3040 RD/YE
1940 RD/VT
4440 RD/L-GN
X203 38
46
X202 6
X500 16
340 RD/VT
J222 (IO4/IO5/IO6)
IO4/IO5/IO6
J301
3040 RD/YE
1940 RD/VT
340 RD/VT
340 RD/VT
4440 RD/L-GN
4440 RD/L-GN
IO3+N8D
IO3-N8D/ IO4/IO5/IO6
X2 10
X85 Steering Wheel Air Bag Coil
X1 1
X305 6
X305 6
3040 RD/YE
X200 10
X320 12
J232
J501
W1Y
DL6/DL9
340 RD/VT
340 RD/VT
3340 RD/VT
3040 RD/YE
3040 RD/YE
1940 RD/VT
1940 RD/VT
4440 RD/L-GN
4440 RD/L-GN
16
X1 6
X1 6
X2 1
X1 15
10
5
4
12
1
X1 9
X84 Data Link Connector
X83 Auxiliary Audio Input
X83R Auxiliary Audio Input - Rear
K33 HVAC Control Module
K73 Telematics Communication Interface Control Module
S70L Steering Wheel Controls Switch - Left
S70R Steering Wheel Controls Switch - Right
S79D Window Switch - Driver
S52 Outside Rearview Mirror Switch
K85 Passenger Presence Module
K36 Inflatable Restraint Sensing and Diagnostic Module

F24DA, F28DA, F29DA, F42DA, F43DA, and F46DA Fuses


B+
B+ Bus
30
KR73 Ignition Main Relay
87
X51A Fuse Block - Instrument Panel
F43DA 30A
F46DA 30A
F42DA 30A
F24DA 5A
F29DA 10A
F28DA 10A
X2 37
38
X1 32
X3 13
14
X2 28
X1 27
36
25
UVC
539 VT/GY
1739 VT/L-GN
1139 VT/WH
1639 VT/BK
5040 RD/YE
1440 RD/BN
1240 RD/L-BU
X106 13
X203 47
X400 9
X301 10
19
X203 36
UEU
X310 1
X320 1
J213 (AXG)
J309 (AL9)
J310 (AL9)
AL9
X500 1
X700 1
3
X2 9
X2 4
2
4
8
1
X1 D
X2 E
K33 HVAC Control Module
B87 Rearview Camera
K69 Transfer Case Control Module
A10 Inside Rearview Mirror
P14 Passenger Air Bag Disabled Indicator
P16 Instrument Cluster
P43 Collision Alert Indicators
S64D Seat Adjuster Switch - Driver
S64P Seat Adjuster Switch - Passenger
M74D Window Motor - Driver
S79LR Window Switch - Left Rear
L O C

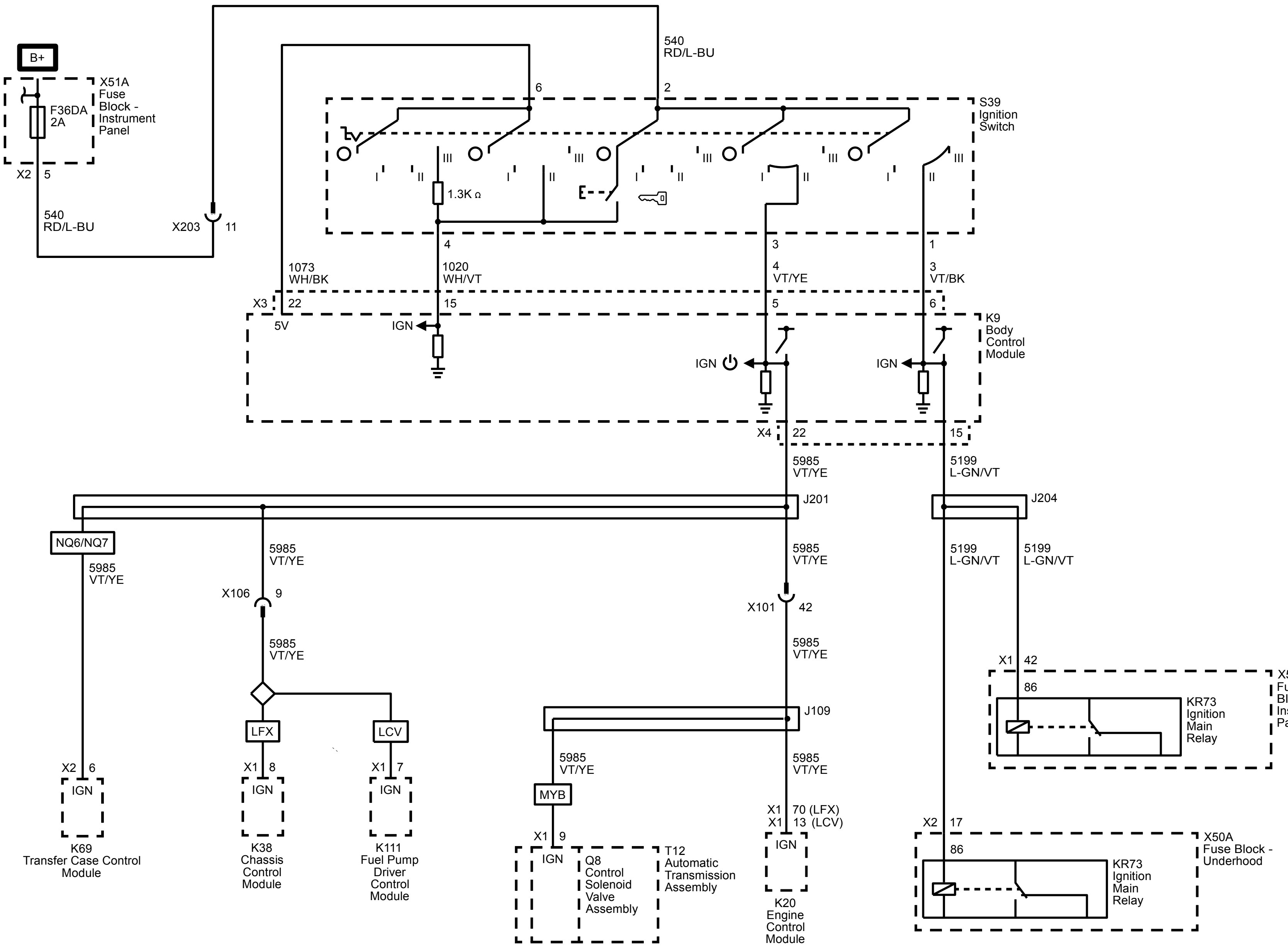
F31DA, F35DA, F36DA, F39DA, F40DA, F41DA, F44DA, and F45DA Fuses



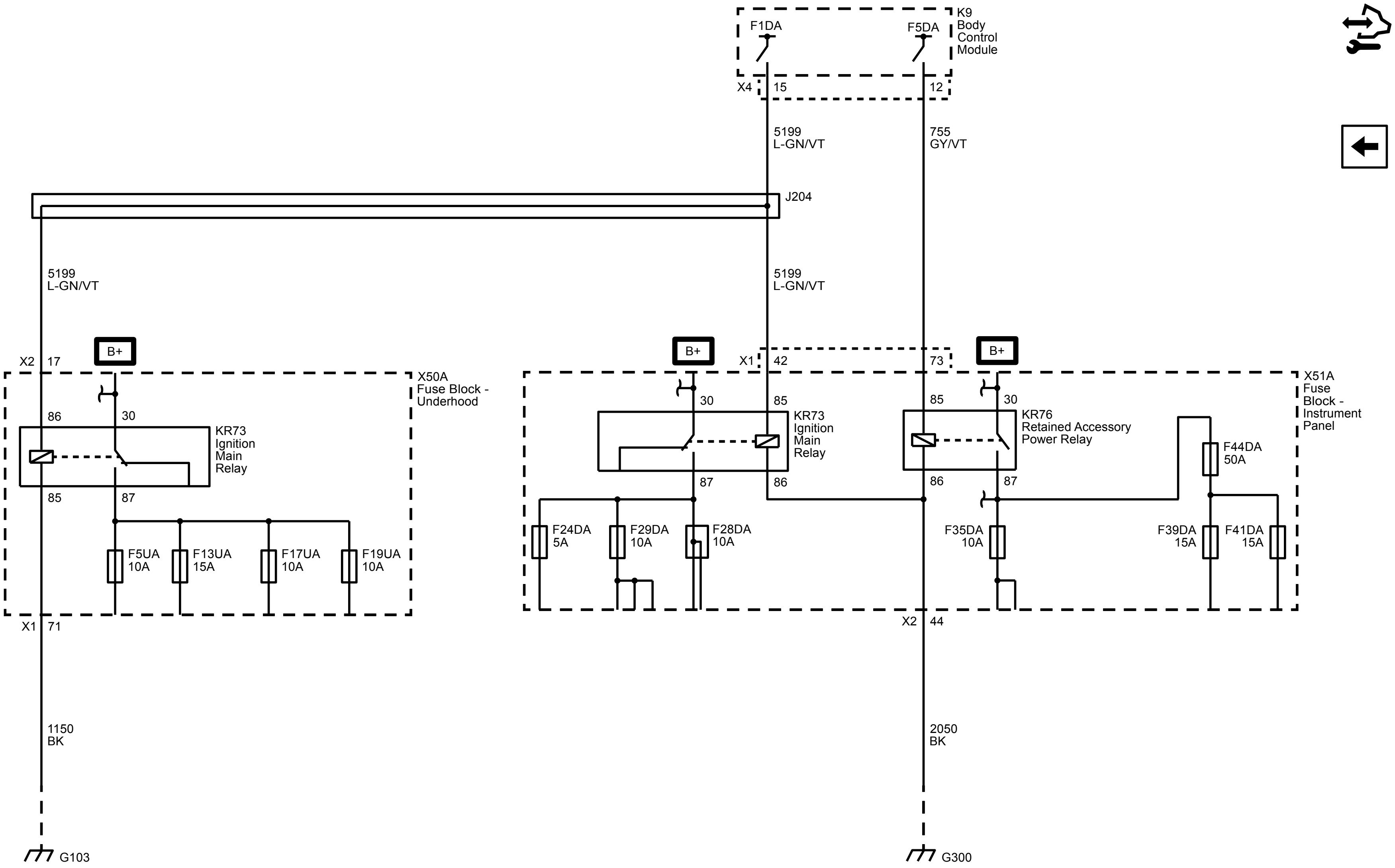
B+
B+ Bus
X51A Fuse Block - Instrument Panel
F31DA 10A
F36DA 2A
F45DA 30A
F40DA 50A
F44DA 50A
30
KR76 Retained Accessory Power Relay
87
F41DA 15A
F39DA 15A
F35DA 10A
X3 12
X2 5
X1 35
X2 20
10
X1 44
X3 - 11 (Not Used)
UFL/UEU
MYB
1340 RD/WH
1701 VT
2101 VT
801 VT
3140 RD/L-GN
J300 (AXG)
X203 37
26
X202 8
540 RD/L-BU
1340 RD/WH
1340 RD/WH
1701 VT
2101 VT
801 VT
X203 11
X600 1
X800 1
X305 1
14 (N8D)
X306 1
X300 10
3140 RD/L-GN
540 RD/L-BU
1340 RD/WH
1340 RD/WH
1701 VT
2101 VT
801 VT
3
2
4
8
A
A
1
K109 Frontview Camera Module
S39 Ignition Switch
S79P Window Switch - Passenger
S79RR Window Switch - Right Rear
X80A Accessory Power Receptacle - Center Console 1
X80B Accessory Power Receptacle - Center Console 2
P2 Transmission Shift Lever Position Indicator

Power Moding Schematics

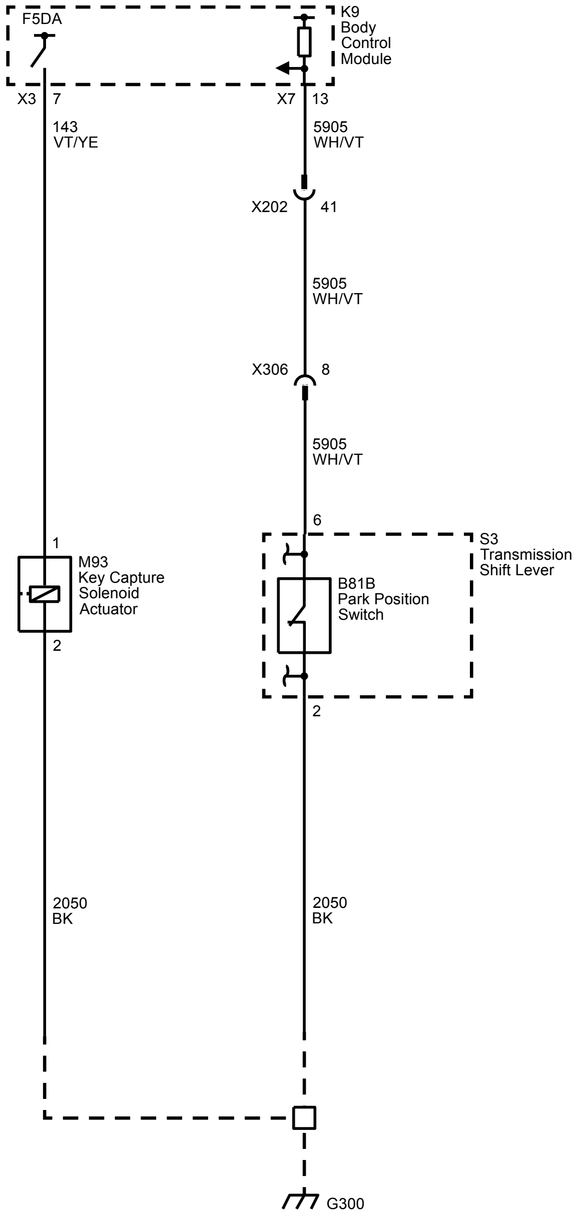
Ignition Switch


B+
X51A Fuse Block - Instrument Panel
F36DA 2A
X2 5
540 RD/L-BU
X203 11
540 RD/L-BU
6
2
S39 Ignition Switch
III
II
I
1.3K Ω
4
3
1
1073 WH/BK
1020 WH/VT
4 VT/YE
3 VT/BK
X3 22
15
5
6
5V
IGN
IGN
IGN
K9 Body Control Module
X4 22
15
5985 VT/YE
5199 L-GN/VT
J201
J204
NQ6/NQ7
5985 VT/YE
5985 VT/YE
5985 VT/YE
5199 L-GN/VT
5199 L-GN/VT
X106 9
X101 42
5985 VT/YE
5985 VT/YE
X1 42
86
X51A Fuse Block - Instrument Panel
KR73 Ignition Main Relay
J109
LFX
LCV
X2 6
IGN
K69 Transfer Case Control Module
X1 8
IGN
K38 Chassis Control Module
X1 7
IGN
K111 Fuel Pump Driver Control Module
5985 VT/YE
MYB
X1 9
IGN
Q8 Control Solenoid Valve Assembly
T12 Automatic Transmission Assembly
5985 VT/YE
X1 70 (LFX)
X1 13 (LCV)
IGN
K20 Engine Control Module
X2 17
86
X50A Fuse Block - Underhood
KR73 Ignition Main Relay

KR73 Ignition Main Relays and Accessory Power

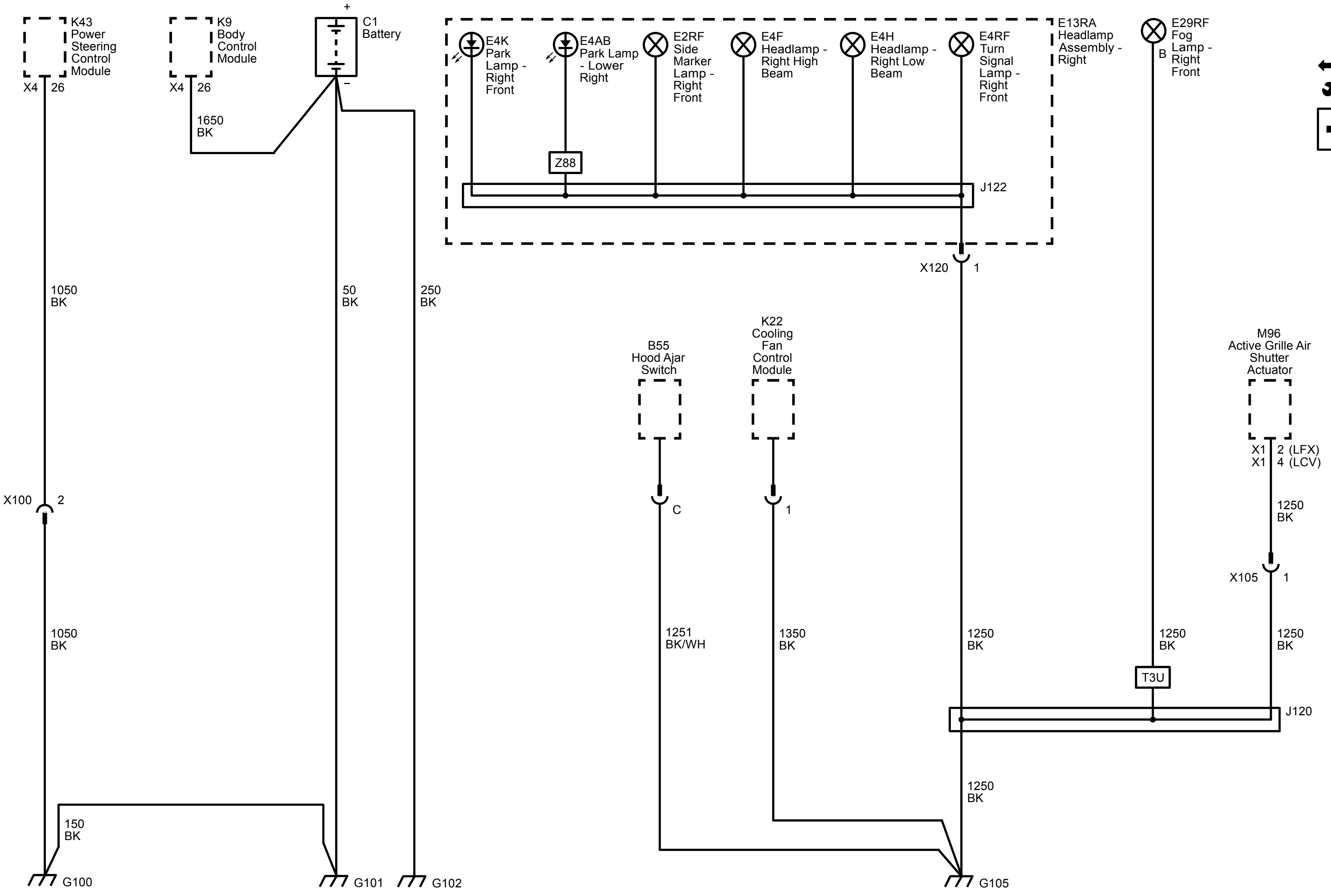

K9
Body
Control
Module
F1DA
F5DA
X4
15
12
5199
L-GN/VT
755
GY/VT
J204
5199
L-GN/VT
5199
L-GN/VT
B+
X2
17
X50A
Fuse Block -
Underhood
86
30
KR73
Ignition
Main
Relay
85
87
F5UA
10A
F13UA
15A
F17UA
10A
F19UA
10A
X1
71
1150
BK
G103
B+
X1
42
73
B+
X51A
Fuse
Block -
Instrument
Panel
30
85
KR73
Ignition
Main
Relay
85
30
KR76
Retained Accessory
Power Relay
87
86
86
87
F44DA
50A
F24DA
5A
F29DA
10A
F28DA
10A
F35DA
10A
F39DA
15A
F41DA
15A
X2
44
2050
BK
G300

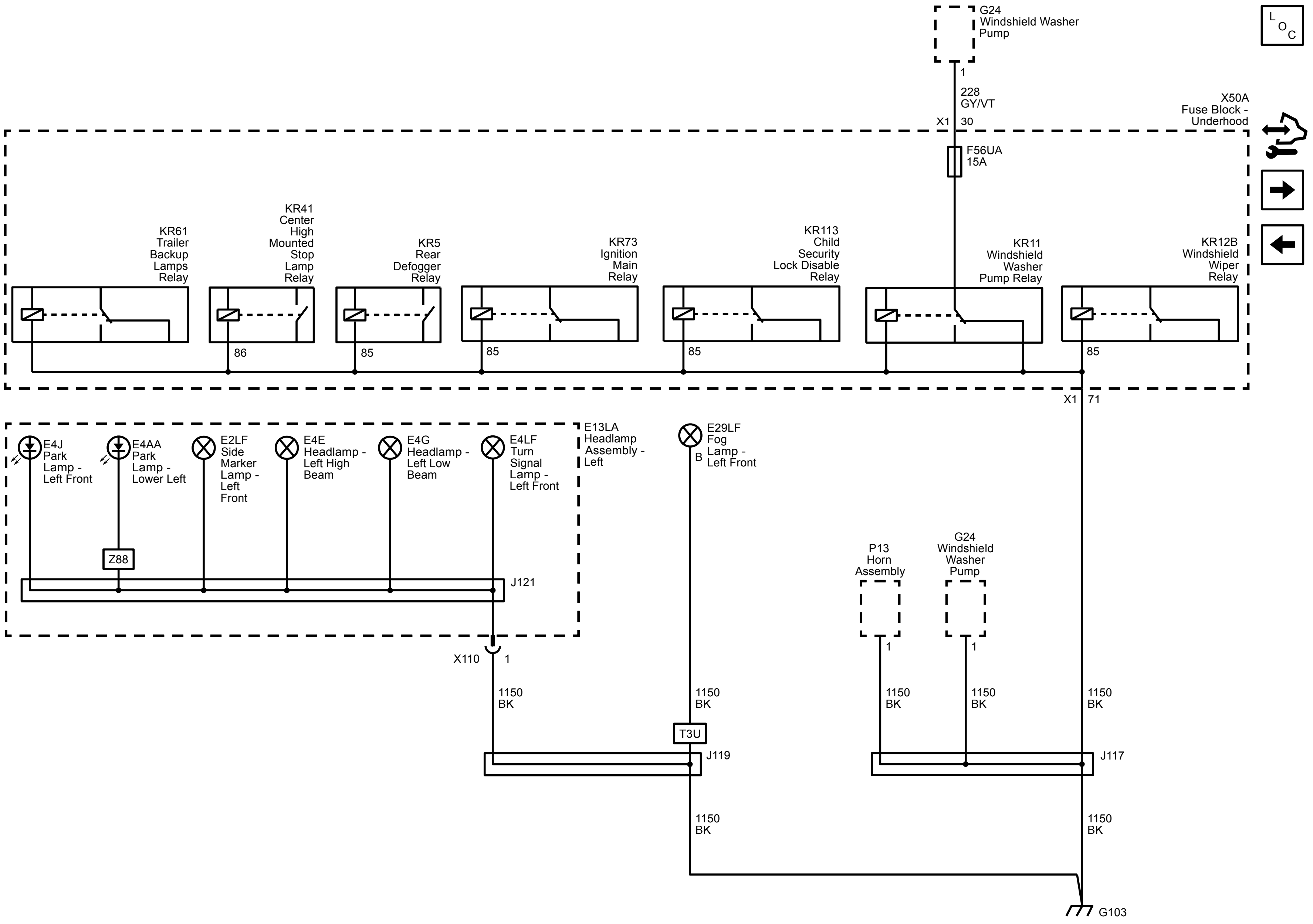
Key Capture, and Park Position Switch


F5DA
K9
Body
Control
Module
X3 7
X7 13
143
VT/YE
5905
WH/VT
X202
41
5905
WH/VT
X306
8
5905
WH/VT
6
S3
Transmission
Shift Lever
1
M93
Key Capture
Solenoid
Actuator
2
B81B
Park Position
Switch
2
2050
BK
2050
BK
G300

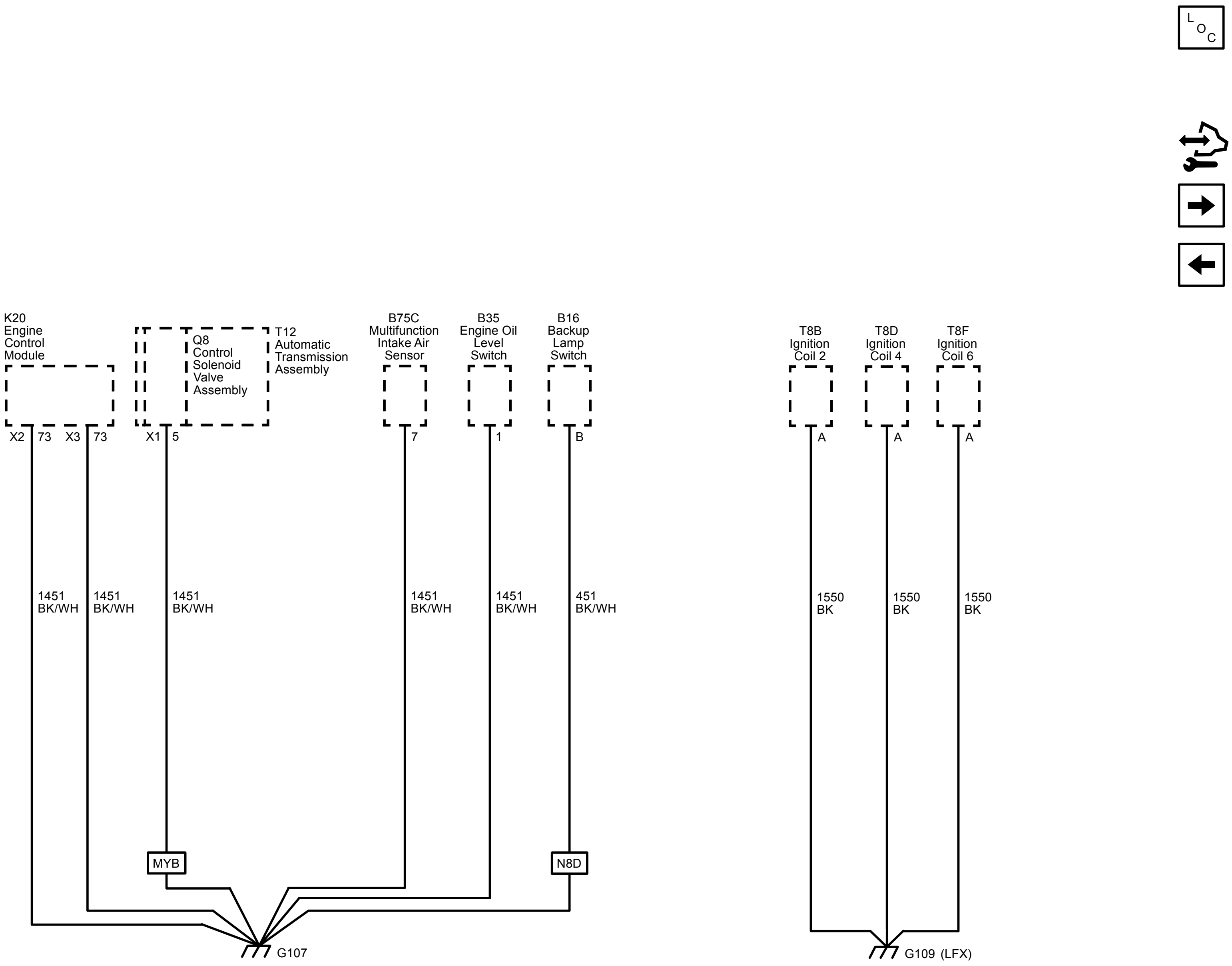
Ground Distribution Schematics

G100, G101, G102, and G105

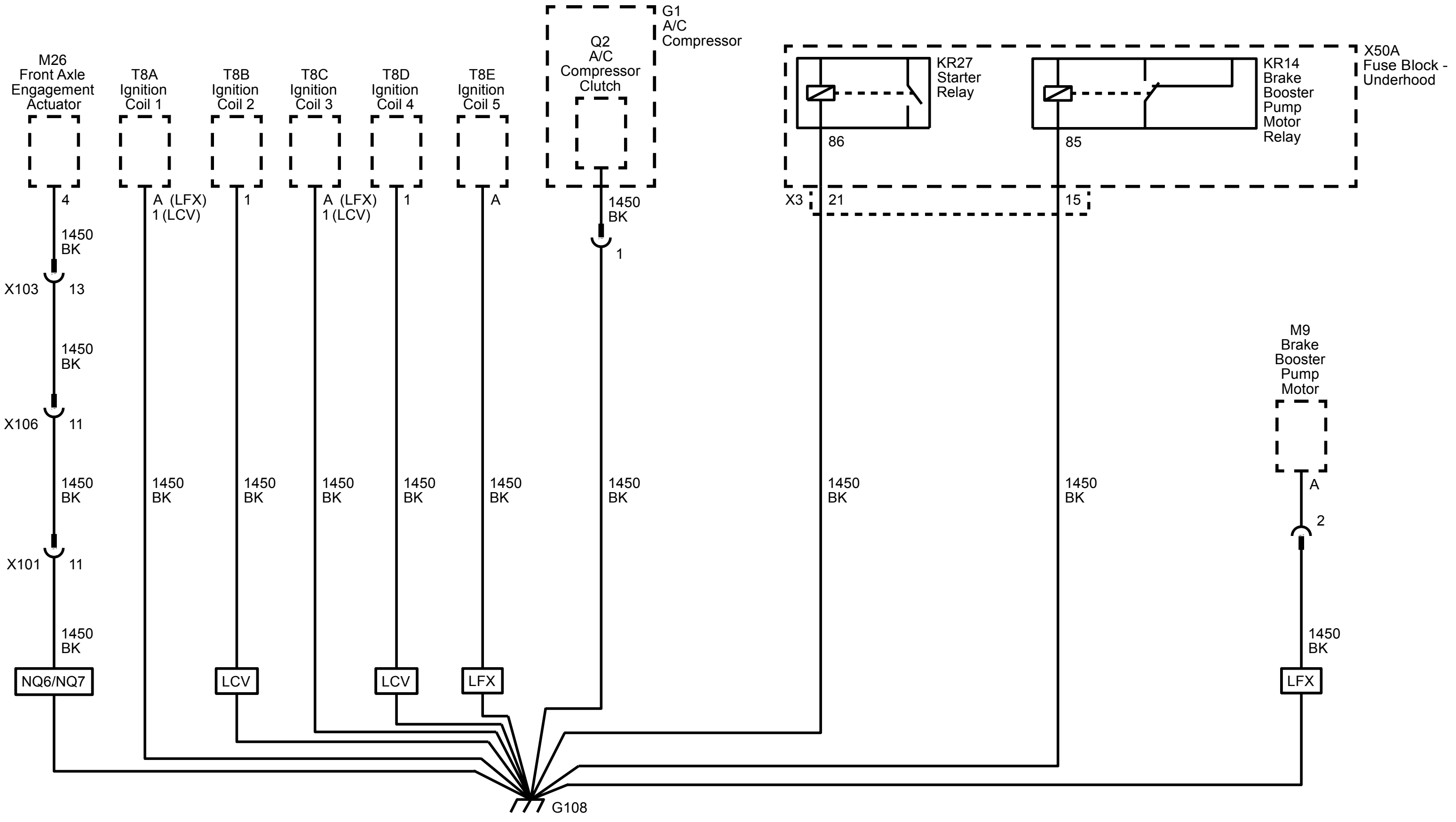

K43 Power Steering Control Module
X4 26
1050 BK
X100 2
1050 BK
150 BK
G100
K9 Body Control Module
X4 26
1650 BK
C1 Battery
+
−
50 BK
250 BK
G101
G102
E13RA Headlamp Assembly - Right
E4K Park Lamp - Right Front
E4AB Park Lamp - Lower Right
Z88
E2RF Side Marker Lamp - Right Front
E4F Headlamp - Right High Beam
E4H Headlamp - Right Low Beam
E4RF Turn Signal Lamp - Right Front
J122
X120 1
E29RF Fog Lamp - Right Front
B
B55 Hood Ajar Switch
C
1251 BK/WH
K22 Cooling Fan Control Module
1
1350 BK
1250 BK
1250 BK
T3U
M96 Active Grille Air Shutter Actuator
X1 2 (LFX)
X1 4 (LCV)
1250 BK
X105 1
1250 BK
J120
1250 BK
G105

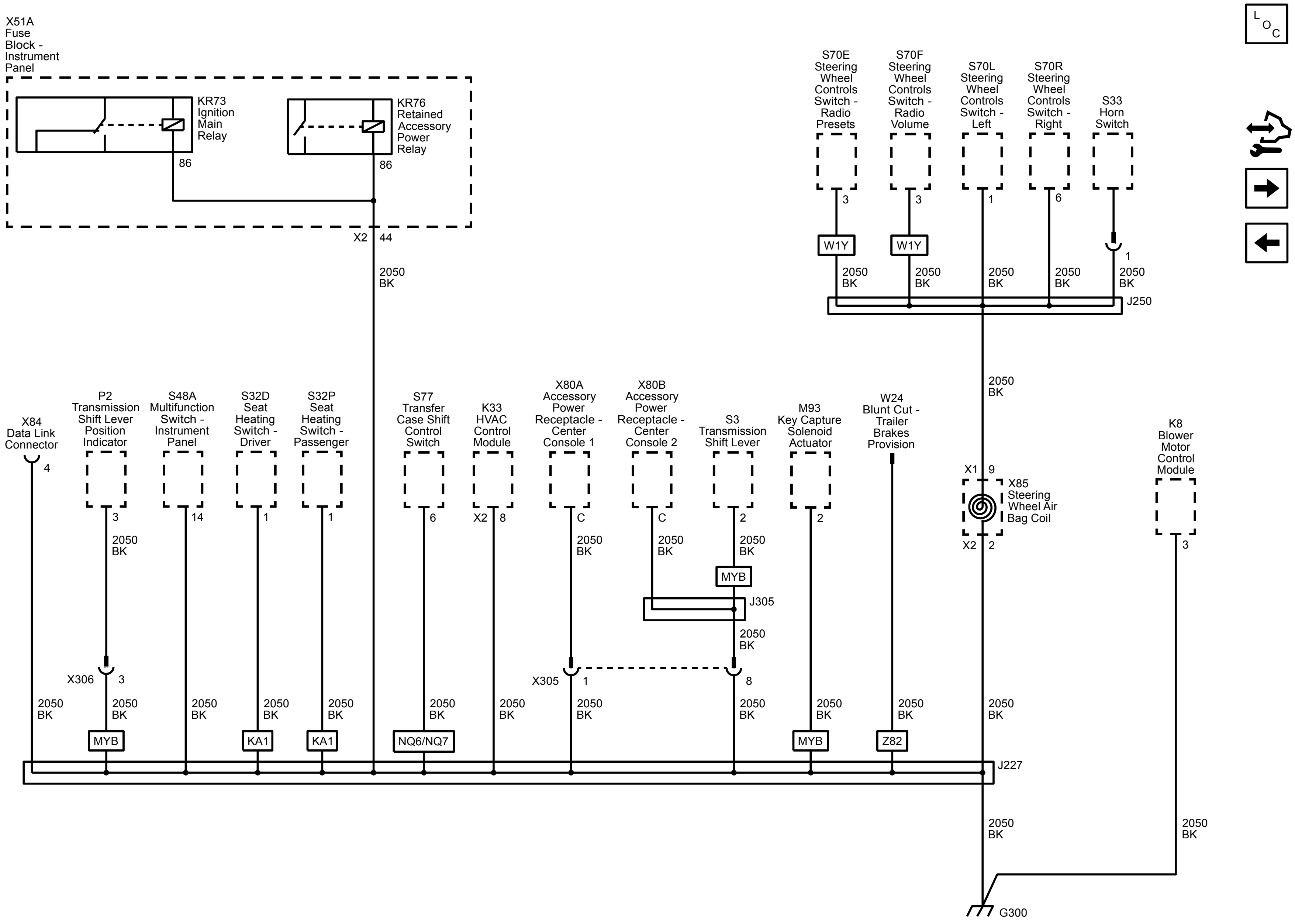

G24
Windshield Washer
Pump
1
228
GY/VT
X1 30
X50A
Fuse Block -
Underhood
F56UA
15A
KR61
Trailer
Backup
Lamps
Relay
KR41
Center
High
Mounted
Stop
Lamp
Relay
KR5
Rear
Defogger
Relay
KR73
Ignition
Main
Relay
KR113
Child
Security
Lock Disable
Relay
KR11
Windshield
Washer
Pump Relay
KR12B
Windshield
Wiper
Relay
86
85
85
85
85
X1 71
E4J
Park
Lamp -
Left Front
E4AA
Park
Lamp -
Lower Left
E2LF
Side
Marker
Lamp -
Left
Front
E4E
Headlamp -
Left High
Beam
E4G
Headlamp -
Left Low
Beam
E4LF
Turn
Signal
Lamp -
Left Front
E13LA
Headlamp
Assembly -
Left
E29LF
Fog
Lamp -
Left Front
B
Z88
J121
X110 1
P13
Horn
Assembly
G24
Windshield
Washer
Pump
1
1
1150
BK
1150
BK
1150
BK
1150
BK
1150
BK
T3U
J119
J117
1150
BK
1150
BK
G103

G107 and G109 (LFX)

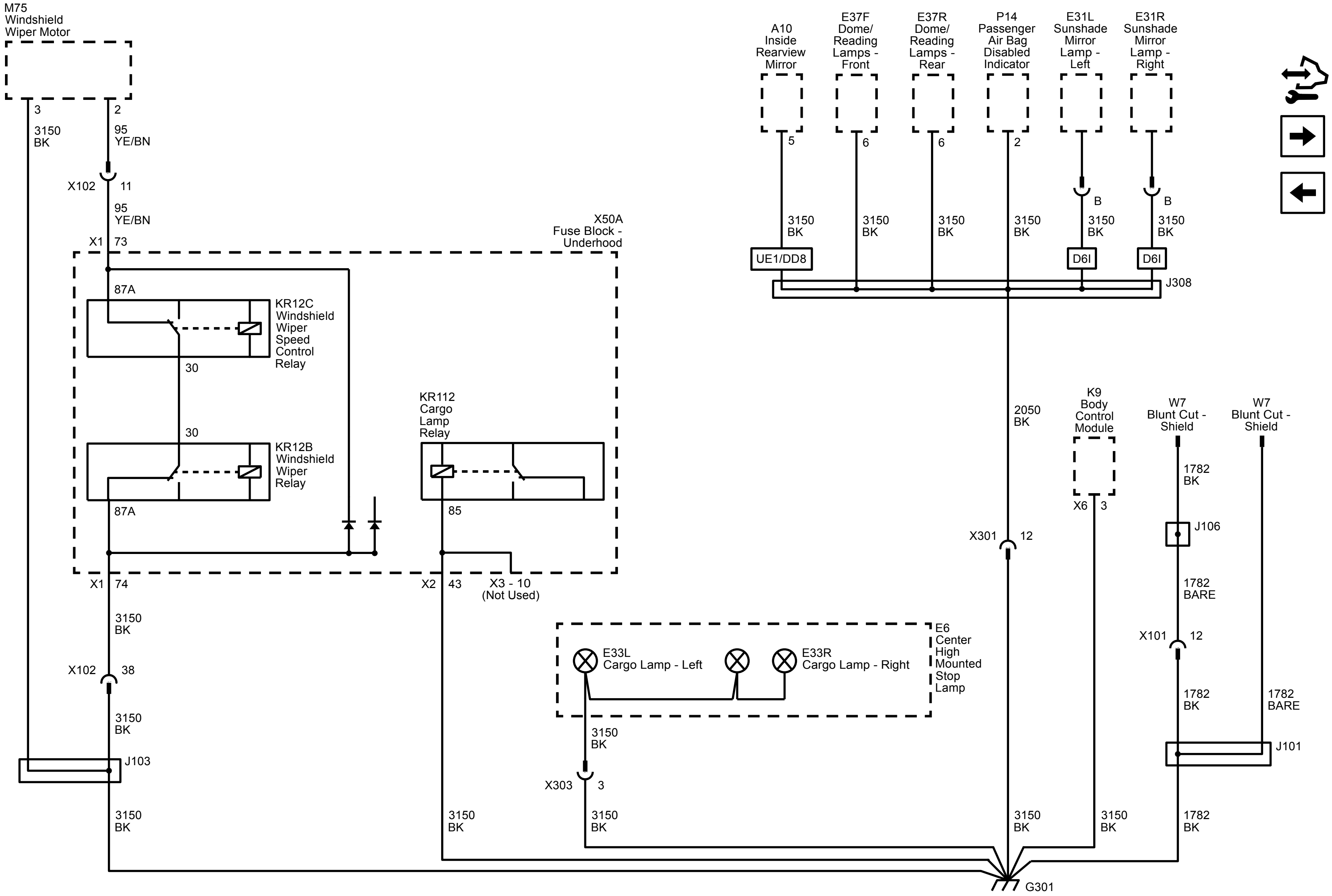

L O C
K20 Engine Control Module
Q8 Control Solenoid Valve Assembly
T12 Automatic Transmission Assembly
B75C Multifunction Intake Air Sensor
B35 Engine Oil Level Switch
B16 Backup Lamp Switch
T8B Ignition Coil 2
T8D Ignition Coil 4
T8F Ignition Coil 6
X2 73
X3 73
X1 5
7
1
B
A
A
A
1451 BK/WH
1451 BK/WH
1451 BK/WH
1451 BK/WH
1451 BK/WH
451 BK/WH
1550 BK
1550 BK
1550 BK
MYB
N8D
G107
G109 (LFX)

G108

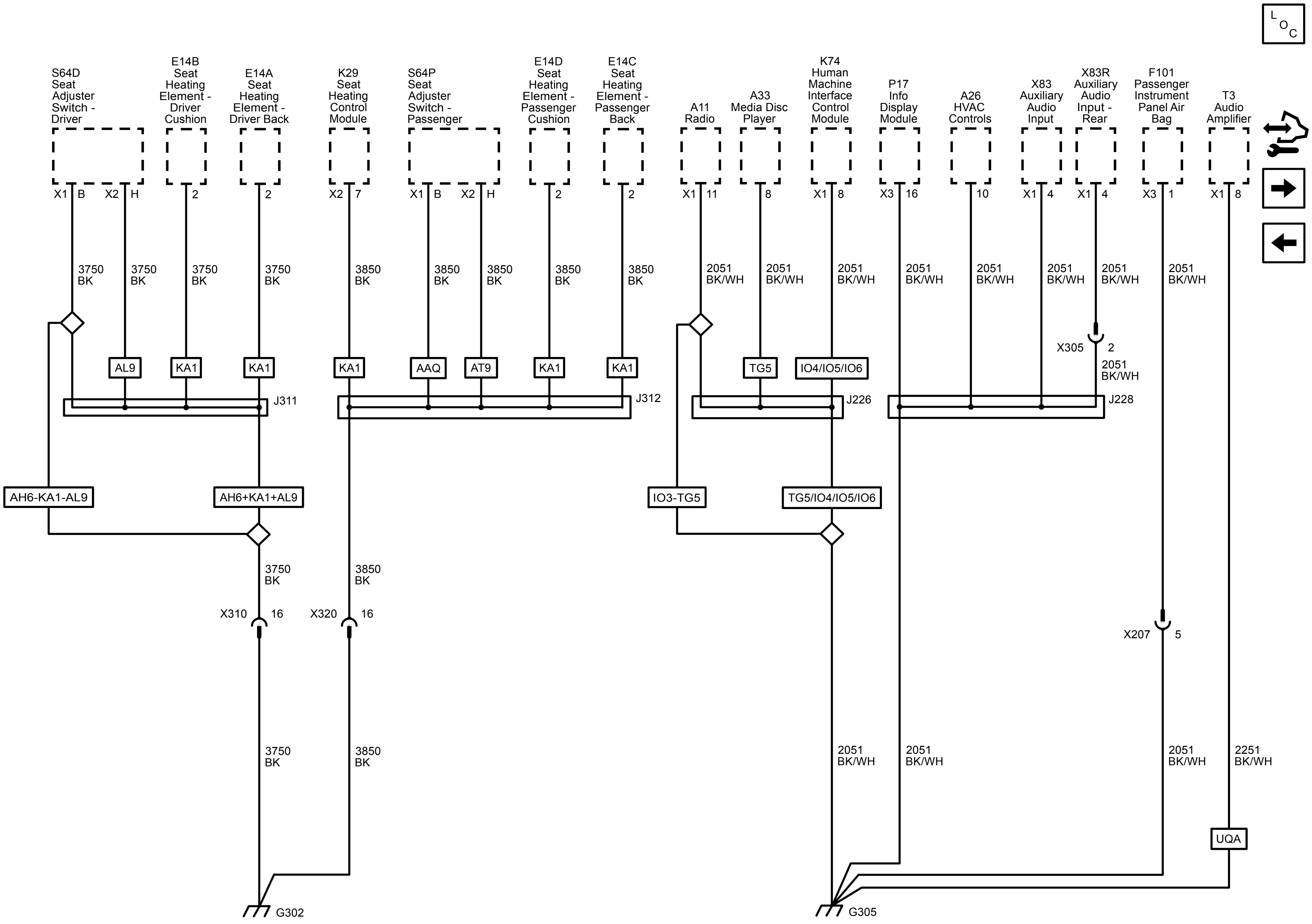

M26
Front Axle
Engagement
Actuator
T8A
Ignition
Coil 1
T8B
Ignition
Coil 2
T8C
Ignition
Coil 3
T8D
Ignition
Coil 4
T8E
Ignition
Coil 5
G1
A/C
Compressor
Q2
A/C
Compressor
Clutch
KR27
Starter
Relay
KR14
Brake
Booster
Pump
Motor
Relay
X50A
Fuse Block -
Underhood
4
A (LFX)
1 (LCV)
1
A (LFX)
1 (LCV)
1
A
1450
BK
1
X3
21
86
15
85
X103
13
X106
11
X101
11
M9
Brake
Booster
Pump
Motor
A
2
1450
BK
NQ6/NQ7
LCV
LCV
LFX
LFX
G108


X51A Fuse Block - Instrument Panel
KR73 Ignition Main Relay
86
KR76 Retained Accessory Power Relay
86
X2 44
2050 BK
S70E Steering Wheel Controls Switch - Radio Presets
S70F Steering Wheel Controls Switch - Radio Volume
S70L Steering Wheel Controls Switch - Left
S70R Steering Wheel Controls Switch - Right
S33 Horn Switch
3
3
1
6
1
W1Y
W1Y
2050 BK
2050 BK
2050 BK
2050 BK
2050 BK
J250
2050 BK
X84 Data Link Connector
4
P2 Transmission Shift Lever Position Indicator
3
S48A Multifunction Switch - Instrument Panel
14
S32D Seat Heating Switch - Driver
1
S32P Seat Heating Switch - Passenger
1
S77 Transfer Case Shift Control Switch
6
K33 HVAC Control Module
X2 8
X80A Accessory Power Receptacle - Center Console 1
C
X80B Accessory Power Receptacle - Center Console 2
C
S3 Transmission Shift Lever
2
M93 Key Capture Solenoid Actuator
2
W24 Blunt Cut - Trailer Brakes Provision
X1 9
X85 Steering Wheel Air Bag Coil
X2 2
K8 Blower Motor Control Module
3
2050 BK
2050 BK
2050 BK
2050 BK
MYB
J305
2050 BK
X306 3
X305 1
8
2050 BK
2050 BK
2050 BK
2050 BK
2050 BK
2050 BK
2050 BK
2050 BK
2050 BK
2050 BK
2050 BK
2050 BK
2050 BK
MYB
KA1
KA1
NQ6/NQ7
MYB
Z82
J227
2050 BK
2050 BK
G300
L O C

G301

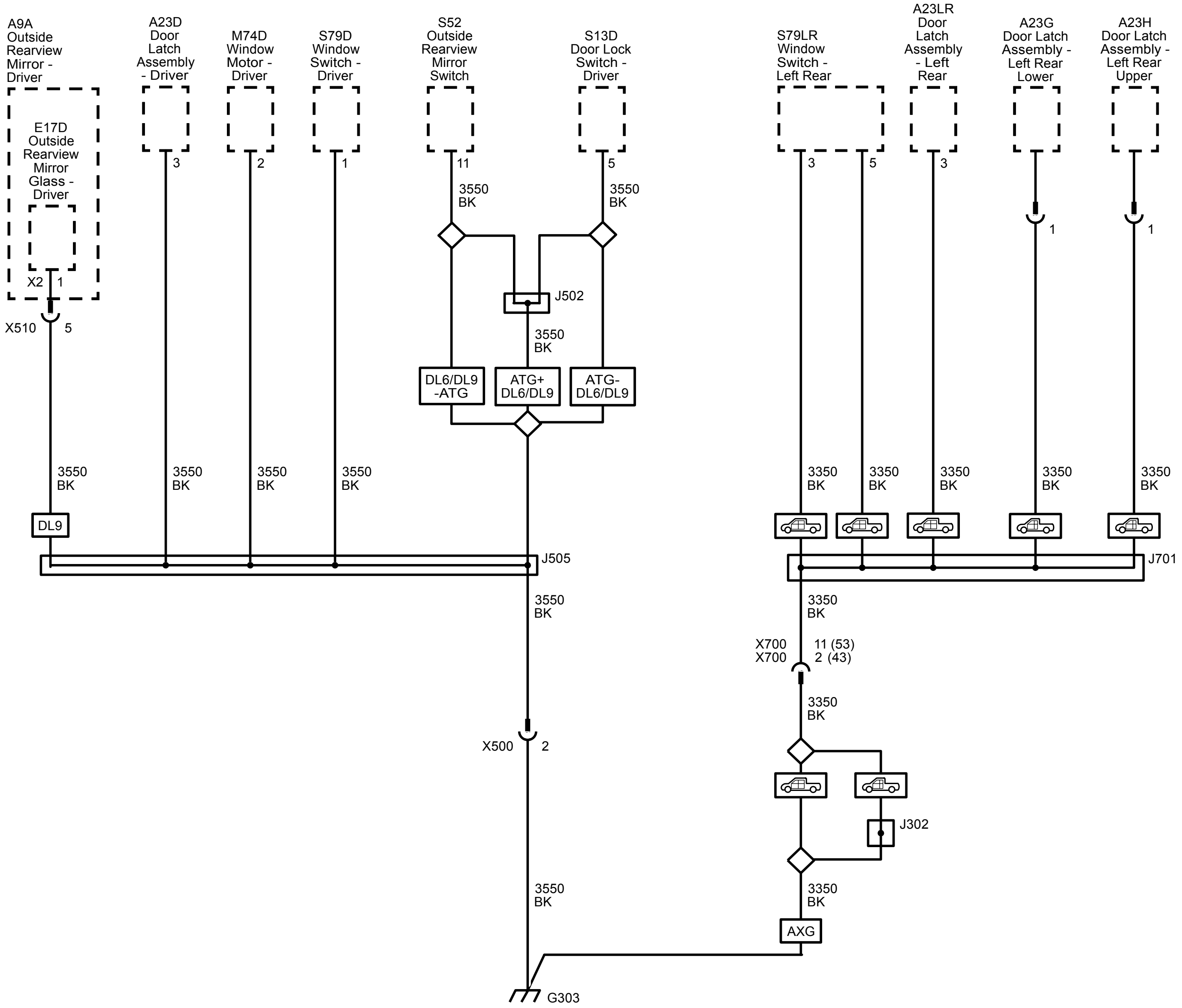

M75
Windshield
Wiper Motor
3
2
3150
BK
95
YE/BN
X102
11
95
YE/BN
X1
73
X50A
Fuse Block -
Underhood
87A
KR12C
Windshield
Wiper
Speed
Control
Relay
30
30
KR12B
Windshield
Wiper
Relay
87A
KR112
Cargo
Lamp
Relay
85
X1
74
X2
43
X3 - 10
(Not Used)
3150
BK
X102
38
3150
BK
J103
3150
BK
3150
BK
E6
Center
High
Mounted
Stop
Lamp
E33L
Cargo Lamp - Left
E33R
Cargo Lamp - Right
3150
BK
X303
3
3150
BK
A10
Inside
Rearview
Mirror
E37F
Dome/
Reading
Lamps -
Front
E37R
Dome/
Reading
Lamps -
Rear
P14
Passenger
Air Bag
Disabled
Indicator
E31L
Sunshade
Mirror
Lamp -
Left
E31R
Sunshade
Mirror
Lamp -
Right
5
6
6
2
B
B
3150
BK
3150
BK
3150
BK
3150
BK
3150
BK
3150
BK
UE1/DD8
D6I
D6I
J308
2050
BK
K9
Body
Control
Module
X6
3
W7
Blunt Cut -
Shield
W7
Blunt Cut -
Shield
1782
BK
J106
1782
BARE
X301
12
X101
12
1782
BK
1782
BARE
J101
3150
BK
3150
BK
1782
BK
G301

G302 and G305

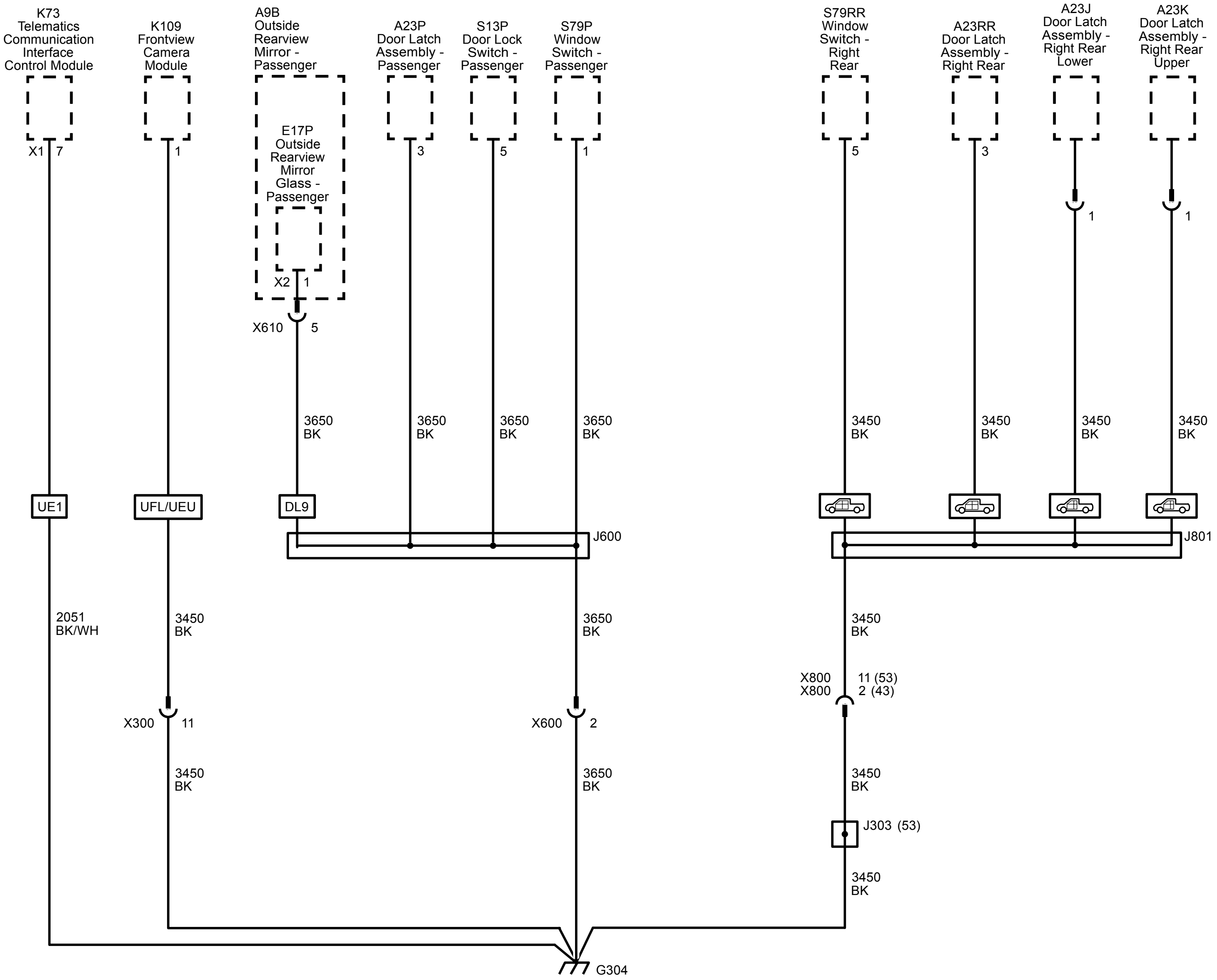


L O C
S64D Seat Adjuster Switch - Driver
E14B Seat Heating Element - Driver Cushion
E14A Seat Heating Element - Driver Back
K29 Seat Heating Control Module
S64P Seat Adjuster Switch - Passenger
E14D Seat Heating Element - Passenger Cushion
E14C Seat Heating Element - Passenger Back
A11 Radio
A33 Media Disc Player
K74 Human Machine Interface Control Module
P17 Info Display Module
A26 HVAC Controls
X83 Auxiliary Audio Input
X83R Auxiliary Audio Input - Rear
F101 Passenger Instrument Panel Air Bag
T3 Audio Amplifier
X1 B
X2 H
2
2
X2 7
X1 B
X2 H
2
2
X1 11
8
X1 8
X3 16
10
X1 4
X1 4
X3 1
X1 8
3750 BK
3750 BK
3750 BK
3750 BK
3850 BK
3850 BK
3850 BK
3850 BK
3850 BK
2051 BK/WH
2051 BK/WH
2051 BK/WH
2051 BK/WH
2051 BK/WH
2051 BK/WH
2051 BK/WH
2051 BK/WH
AL9
KA1
KA1
KA1
AAQ
AT9
KA1
KA1
TG5
IO4/IO5/IO6
X305 2
2051 BK/WH
J311
J312
J226
J228
AH6-KA1-AL9
AH6+KA1+AL9
IO3-TG5
TG5/IO4/IO5/IO6
3750 BK
3850 BK
X310 16
X320 16
X207 5
3750 BK
3850 BK
2051 BK/WH
2051 BK/WH
2051 BK/WH
2251 BK/WH
UQA
G302
G305

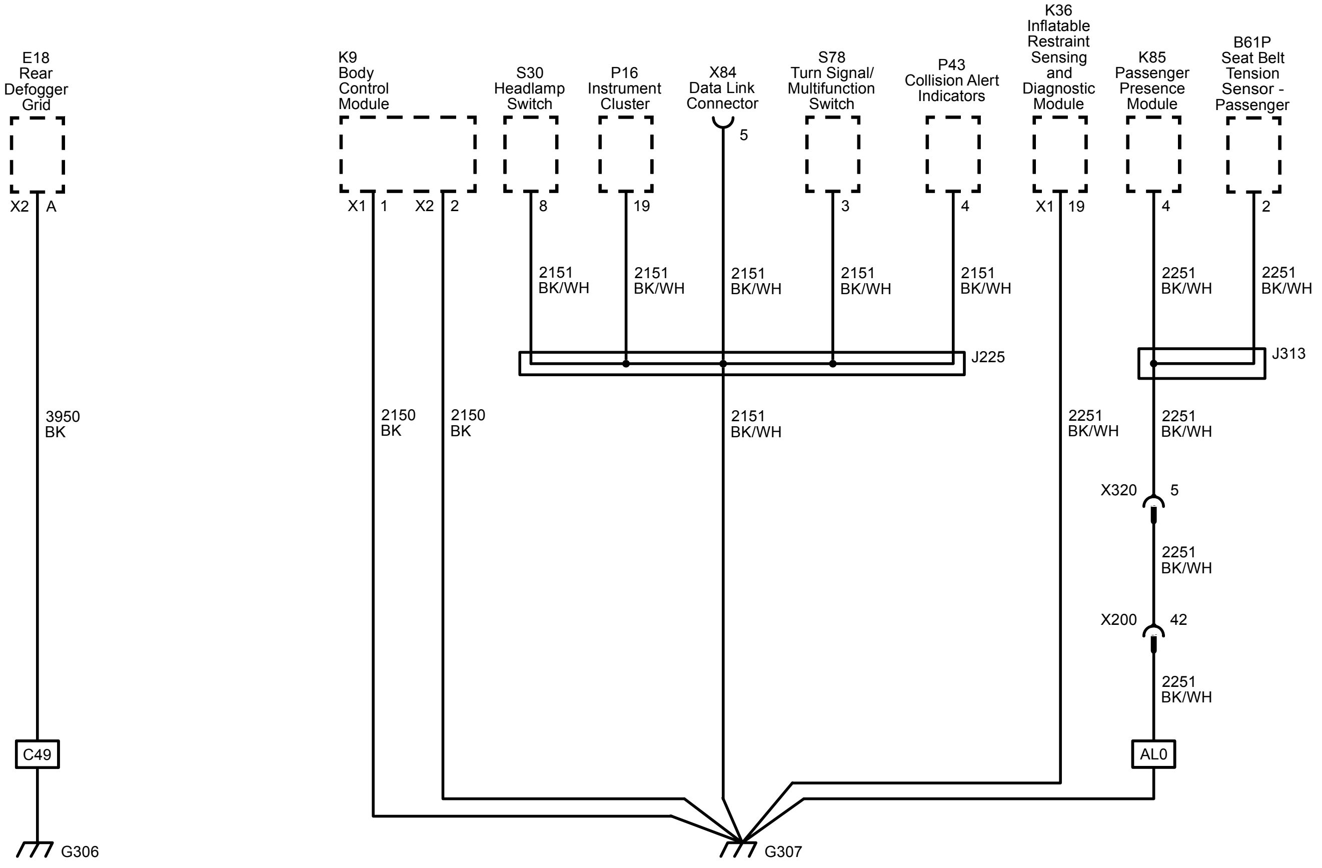
G303


A9A Outside Rearview Mirror - Driver
E17D Outside Rearview Mirror Glass - Driver
X2 1
X510 5
3550 BK
DL9
A23D Door Latch Assembly - Driver
3
3550 BK
M74D Window Motor - Driver
2
3550 BK
S79D Window Switch - Driver
1
3550 BK
S52 Outside Rearview Mirror Switch
11
3550 BK
S13D Door Lock Switch - Driver
5
3550 BK
J502
3550 BK
DL6/DL9 -ATG
ATG+ DL6/DL9
ATG- DL6/DL9
J505
3550 BK
X500 2
3550 BK
S79LR Window Switch - Left Rear
3
5
A23LR Door Latch Assembly - Left Rear
3
A23G Door Latch Assembly - Left Rear Lower
1
A23H Door Latch Assembly - Left Rear Upper
1
3350 BK
3350 BK
3350 BK
3350 BK
3350 BK
J701
3350 BK
X700 11 (53)
X700 2 (43)
3350 BK
J302
3350 BK
AXG
G303

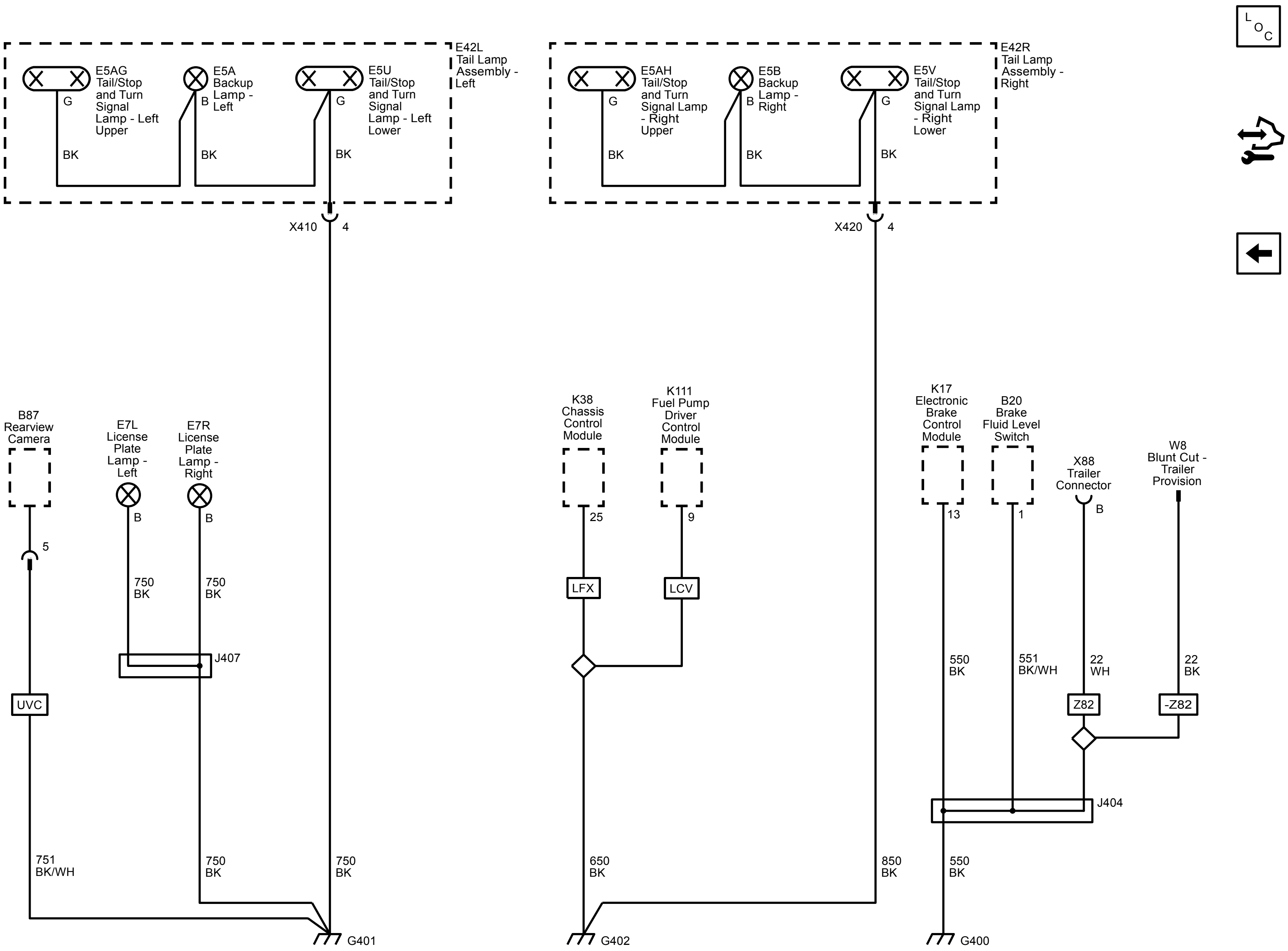
G304


K73 Telematics Communication Interface Control Module
K109 Frontview Camera Module
A9B Outside Rearview Mirror - Passenger
E17P Outside Rearview Mirror Glass - Passenger
A23P Door Latch Assembly - Passenger
S13P Door Lock Switch - Passenger
S79P Window Switch - Passenger
S79RR Window Switch - Right Rear
A23RR Door Latch Assembly - Right Rear
A23J Door Latch Assembly - Right Rear Lower
A23K Door Latch Assembly - Right Rear Upper
X1 7
1
X2 1
X610 5
3
5
1
5
3
1
1
3650 BK
3650 BK
3650 BK
3650 BK
3450 BK
3450 BK
3450 BK
3450 BK
UE1
UFL/UEU
DL9
J600
J801
2051 BK/WH
3450 BK
3650 BK
3450 BK
X800 11 (53)
X800 2 (43)
X300 11
X600 2
3450 BK
3650 BK
3450 BK
J303 (53)
3450 BK
G304

G306 and G307

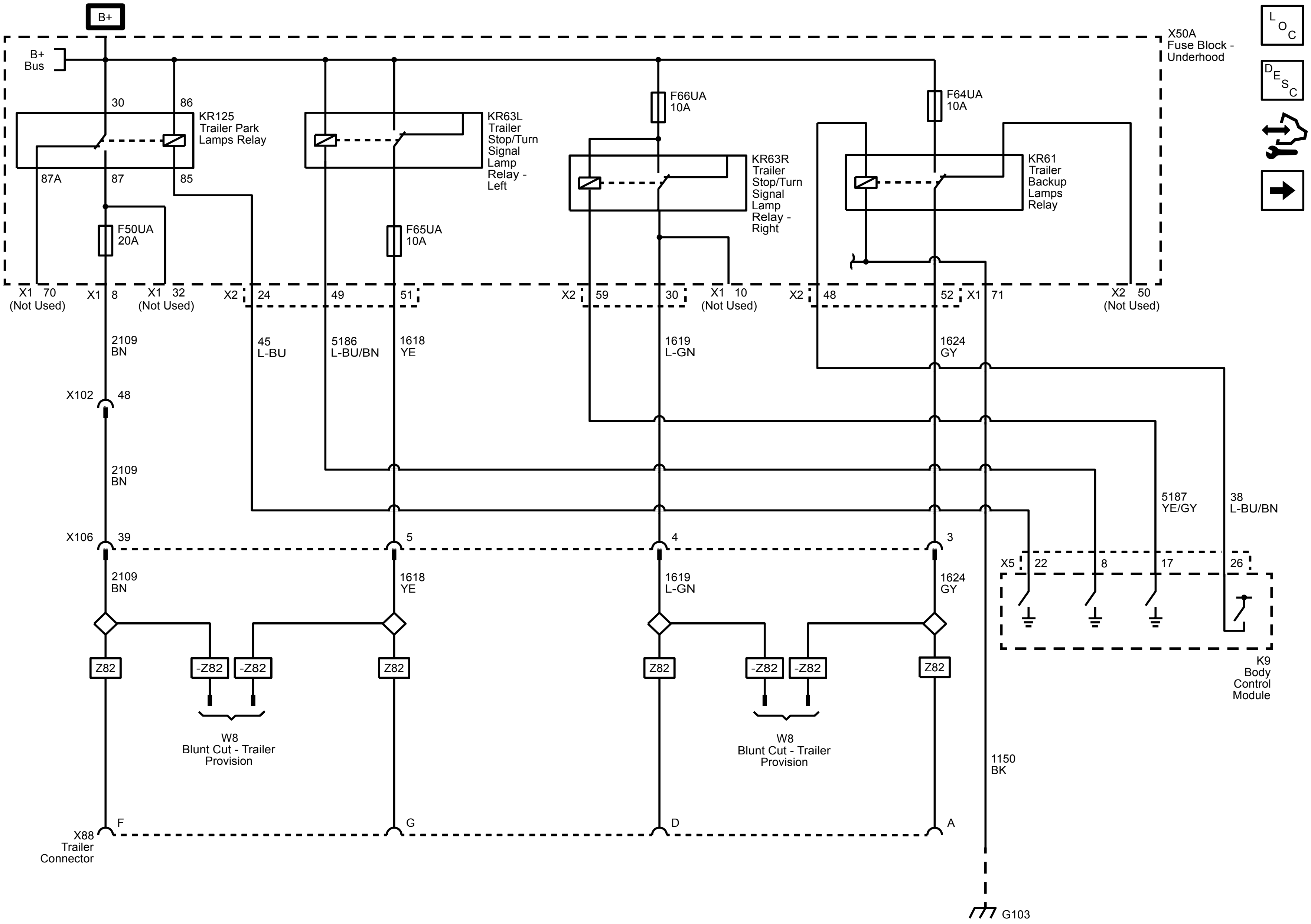

E18 Rear Defogger Grid
X2 A
3950 BK
C49
G306
K9 Body Control Module
X1 1
X2 2
2150 BK
2150 BK
S30 Headlamp Switch
8
P16 Instrument Cluster
19
X84 Data Link Connector
5
S78 Turn Signal/ Multifunction Switch
3
P43 Collision Alert Indicators
4
2151 BK/WH
2151 BK/WH
2151 BK/WH
2151 BK/WH
2151 BK/WH
J225
2151 BK/WH
K36 Inflatable Restraint Sensing and Diagnostic Module
X1 19
2251 BK/WH
K85 Passenger Presence Module
4
B61P Seat Belt Tension Sensor - Passenger
2
2251 BK/WH
2251 BK/WH
J313
2251 BK/WH
X320 5
2251 BK/WH
X200 42
2251 BK/WH
AL0
G307

G400, G401, and G402

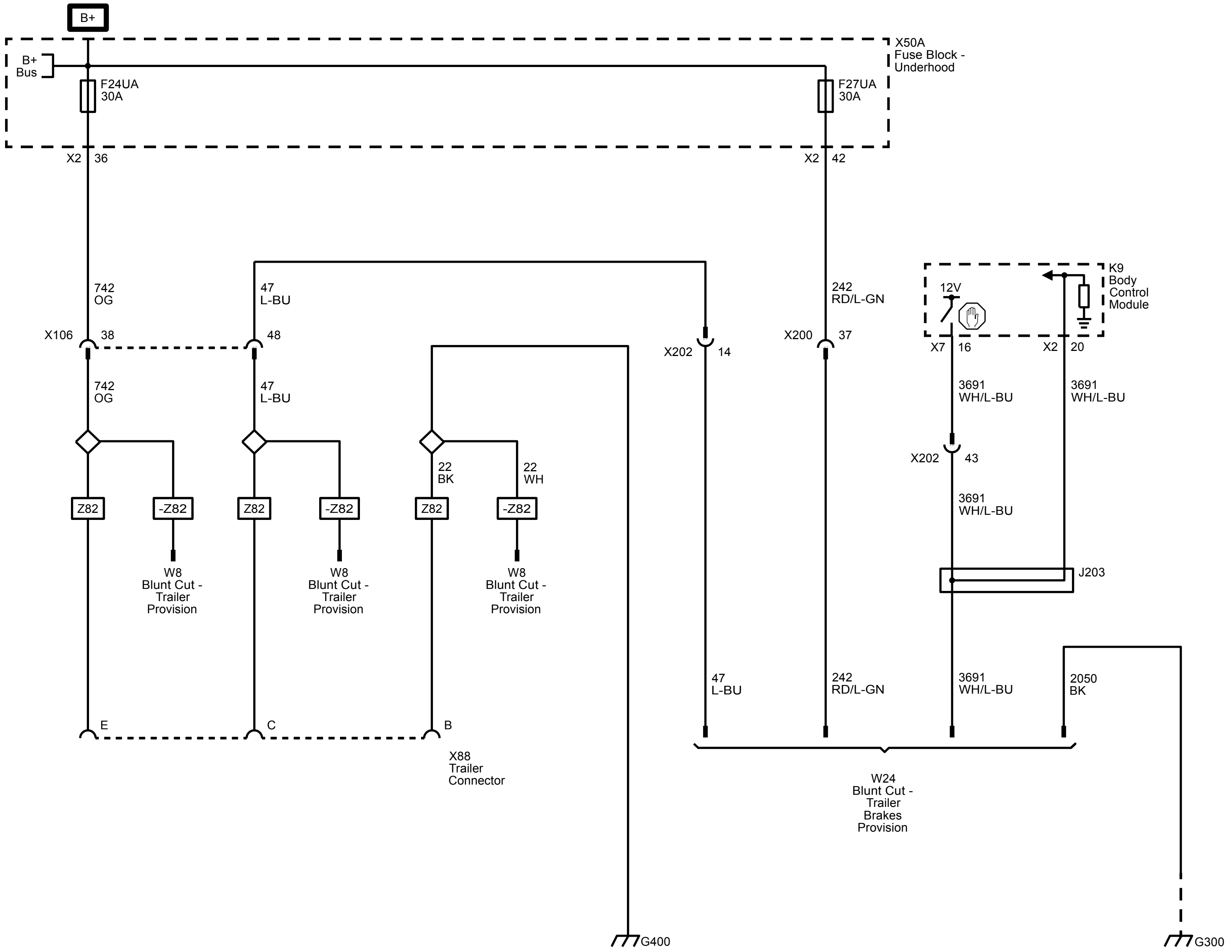

E42L
Tail Lamp Assembly - Left
E5AG
Tail/Stop and Turn Signal Lamp - Left Upper
E5A
Backup Lamp - Left
E5U
Tail/Stop and Turn Signal Lamp - Left Lower
G
B
G
BK
BK
BK
X410
4
E42R
Tail Lamp Assembly - Right
E5AH
Tail/Stop and Turn Signal Lamp - Right Upper
E5B
Backup Lamp - Right
E5V
Tail/Stop and Turn Signal Lamp - Right Lower
G
B
G
BK
BK
BK
X420
4
LOC
B87
Rearview Camera
5
UVC
751
BK/WH
E7L
License Plate Lamp - Left
B
750
BK
E7R
License Plate Lamp - Right
B
750
BK
J407
750
BK
750
BK
G401
K38
Chassis Control Module
25
LFX
K111
Fuel Pump Driver Control Module
9
LCV
650
BK
850
BK
G402
K17
Electronic Brake Control Module
13
550
BK
B20
Brake Fluid Level Switch
1
551
BK/WH
X88
Trailer Connector
B
22
WH
Z82
W8
Blunt Cut - Trailer Provision
22
BK
-Z82
J404
550
BK
G400

Trailer Connector/Provision Schematics

Trailer Connector Pins:A,D,F, and G


B+
B+ Bus
30
86
KR125 Trailer Park Lamps Relay
87A
87
85
KR63L Trailer Stop/Turn Signal Lamp Relay - Left
F66UA 10A
F64UA 10A
X50A Fuse Block - Underhood
KR63R Trailer Stop/Turn Signal Lamp Relay - Right
KR61 Trailer Backup Lamps Relay
F50UA 20A
F65UA 10A
X1 70 (Not Used)
X1 8
X1 32 (Not Used)
X2 24
49
51
X2 59
30
X1 10 (Not Used)
X2 48
52
X1 71
X2 50 (Not Used)
2109 BN
45 L-BU
5186 L-BU/BN
1618 YE
1619 L-GN
1624 GY
X102 48
2109 BN
5187 YE/GY
38 L-BU/BN
X106 39
5
4
3
2109 BN
1618 YE
1619 L-GN
1624 GY
X5 22
8
17
26
K9 Body Control Module
Z82
-Z82
-Z82
Z82
Z82
-Z82
-Z82
Z82
W8 Blunt Cut - Trailer Provision
W8 Blunt Cut - Trailer Provision
1150 BK
X88 Trailer Connector
F
G
D
A
G103
LOC
DESC

Trailer Connector Pins:B,C, E, and Trailer Brakes Provisions


B+
B+ Bus
F24UA 30A
F27UA 30A
X50A Fuse Block - Underhood
X2 36
X2 42
742 OG
47 L-BU
242 RD/L-GN
K9 Body Control Module
12V
X7 16
X2 20
X106 38
48
X202 14
X200 37
742 OG
47 L-BU
3691 WH/L-BU
3691 WH/L-BU
X202 43
22 BK
22 WH
3691 WH/L-BU
Z82
-Z82
Z82
-Z82
Z82
-Z82
W8 Blunt Cut - Trailer Provision
W8 Blunt Cut - Trailer Provision
W8 Blunt Cut - Trailer Provision
J203
47 L-BU
242 RD/L-GN
3691 WH/L-BU
2050 BK
E
C
B
X88 Trailer Connector
W24 Blunt Cut - Trailer Brakes Provision
G400
G300

Master Electrical Component List

Code	Name	Option	Location	Locator View	Connector End View
A3L	Sunshade – Left	—	In the front of the passenger compartment, above the driver seat	—	—
A3R	Sunshade – Right	—	In the front of the passenger compartment, above the passenger seat	—	—
A7	Fuel Pump and Level Sensor Assembly	—	Under the vehicle, on top the fuel tank	—	*A7 Fuel Pump and Level Sensor Assembly*
A9A	Outside Rearview Mirror – Driver	—	Outside the vehicle, at the front of the driver door	—	—
A9B	Outside Rearview Mirror – Passenger	—	Outside the vehicle, at the front of the passenger door	—	—
A10	Inside Rearview Mirror	—	In the passenger compartment, at the top center of the windshield	• *Headliner Components (Crew Cab)* • *Headliner Components (Extended Cab)*	*A10 Inside Rearview Mirror*
A11	Radio	—	In the passenger compartment, center of the instrument panel, behind the radio controls	*Front of the Instrument Panel Components*	• *A11 Radio X1* • *A11 Radio X2* • *A11 Radio X3* • *A11 Radio X4* • *A11 Radio X7*
A16	Transfer Case Motor	NQ6/NQ7	On the underbody, mounted to the bottom rear of the transfer case	*Transmission Components (MYB with NQ6/NQ7)*	*A16 Transfer Case Motor (NQ6/NQ7)*
A22	Radio Controls	—	In the passenger compartment, at the center of the instrument panel, part of the info display module	—	—
A23D	Door Latch Assembly – Driver	—	In the passenger compartment, at the middle rear of the driver door	*Driver Door Components*	*A23D Door Latch Assembly - Driver*
A23G	Door Latch Assembly – Left Rear Lower	53 with AXG	In the passenger compartment, at the lower front of the left rear door	*Left Rear Door Components (Extended Cab)*	*A23G Door Latch Assembly - Left Rear Lower (Extended Cab)*
A23H	Door Latch Assembly – Left Rear Upper	53 with AXG	In the passenger compartment, at the upper front of the left rear door	*Left Rear Door Components (Extended Cab)*	*A23H Door Latch Assembly - Left Rear Upper (Extended Cab)*
A23J	Door Latch Assembly – Right Rear Lower	53 with AXG	In the passenger compartment, at the lower front of the right rear door	*Right Rear Door Components (Extended Cab)*	*A23J Door Latch Assembly - Right Rear Lower (Extended Cab)*
A23K	Door Latch Assembly – Right Rear Upper	53 with AXG	In the passenger compartment, at the upper front of the right rear door	*Right Rear Door Components (Extended Cab)*	*A23K Door Latch Assembly - Right Rear Upper (Extended Cab)*
A23LR	Door Latch Assembly – Left Rear	43	In the passenger compartment, at the middle rear of the left rear door	*Left Rear Door Components (Crew Cab)*	*A23LR Door Latch Assembly - Left Rear (Crew Cab)*
A23P	Door Latch Assembly – Passenger	—	In the passenger compartment, at the middle rear of the passenger door	*Passenger Door Components*	*A23P Door Latch Assembly - Passenger*
A23RR	Door Latch Assembly – Right Rear	43	In the passenger compartment, at the middle rear of the right rear door	*Right Rear Door Components (Crew Cab)*	*A23RR Door Latch Assembly - Right Rear (Crew Cab)*

A26	HVAC Controls	—	In the passenger compartment, at the middle center of the instrument panel, below the radio controls	—	*A26 HVAC Controls*
A33	Media Disc Player	TG5	In the passenger compartment, lower center of the instrument panel, below the radio controls	—	*A33 Media Disc Player (TG5)*
B1	A/C Refrigerant Pressure Sensor	—	In the front of the engine compartment, on the right side of the A/C compressor	*Left Front of the Engine Components (LCV)*	*B1 A/C Refrigerant Pressure Sensor*
B5LF	Wheel Speed Sensor – Left Front	—	Outside the vehicle, in the left front hub assembly	• *Left Side of Engine Compartment Components (2 of 2)* • *Chassis Components (Crew Cab)*	*B5LF Wheel Speed Sensor - Left Front*
B5LR	Wheel Speed Sensor – Left Rear	—	Outside the vehicle, in the left rear hub assembly	• *Chassis Components (Crew Cab)* • *Underbody Components (2 of 3)*	*B5LR Wheel Speed Sensor - Left Rear*
B5RF	Wheel Speed Sensor – Right Front	—	Outside the vehicle, in the right front hub assembly	• *Right Front Wheel Well Component* • *Chassis Components (Crew Cab)*	*B5RF Wheel Speed Sensor - Right Front*
B5RR	Wheel Speed Sensor – Right Rear	—	Outside the vehicle, in the right rear hub assembly	• *Underbody Components (3 of 3)* • *Chassis Components (Crew Cab)*	*B5RR Wheel Speed Sensor - Right Rear*
B7B	Air Temperature Sensor – Duct Lower	C68	In the passenger compartment, in the floor vent of the front console	*HVAC Assembly Components*	*B7B Air Temperature Sensor - Duct Lower (C68)*
B7F	Air Temperature Sensor – Duct Upper	C68	In the passenger compartment, behind the instrument panel, on the upper left side of the HVAC module	*HVAC Assembly Components*	*B7F Air Temperature Sensor - Duct Upper (C68)* —
B9	Ambient Air Temperature Sensor	—	Left front of the vehicle, left of the hood latch assembly	—	*B9 Ambient Air Temperature Sensor*
B10B	Ambient Light/Sunload Sensor	—	In the passenger compartment, at the top center of the instrument panel, in the defroster deflector	*Front of the Instrument Panel Components*	*B10B Ambient Light/Sunload Sensor*
B12A	Transmission Fluid Pressure Switch	MYB	Under the vehicle, inside the automatic transmission, part of the control solenoid valve assembly	—	—
B13	Transmission Fluid Temperature Sensor	MYB	Under the vehicle, inside the automatic transmission, part of the control solenoid valve assembly	—	—
B14A	Transmission Output Shaft Speed Sensor	MYB	Under the vehicle, internal to the transmission assembly	—	—
B14A	Transmission Output Shaft Speed Sensor	NQ6/NQ7	Under the vehicle, on the transfer case assembly	*Transmission Components (MYB with NQ6/NQ7)*	*B14A Transmission Output Shaft Speed Sensor (NQ6/NQ7)*
B14A	Transmission Output Shaft Speed Sensor	N8D	Under the vehicle, on the manual transmission assembly	—	*B14A Transmission Output Shaft Speed Sensor (N8D)*
B14C	Transmission Input Shaft Speed Sensor	MYB	Under the vehicle, internal to the transmission assembly	—	—
B15	Transmission Internal Mode Switch	MYB	Under the vehicle, internal to the transmission assembly	—	—

B16	Backup Lamp Switch	N8D	In the engine compartment, lower rear of engine block, above the transmission	—	*B16 Backup Lamp Switch (N8D)*
B18	Battery Current Sensor	—	In the engine compartment, near the battery, on the negative battery cable	*Left Side of Engine Compartment Components (1 of 2)*	*B18 Battery Current Sensor*
B19B	Brake Booster Vacuum Sensor	—	At the rear of the engine compartment, left of the brake fluid reservoir	*Left Side of Engine Compartment Components (2 of 2)*	*B19B Brake Booster Vacuum Sensor*
B20	Brake Fluid Level Switch	—	At the rear of the engine compartment, on the brake fluid reservoir	*Left Side of Engine Compartment Components (2 of 2)*	*B20 Brake Fluid Level Switch*
B22	Brake Pedal Position Sensor	MYB	In the passenger compartment, behind the brake pedal assembly	*Below Left Side of the Instrument Panel Components (MYB)*	*B22 Brake Pedal Position Sensor (MYB)*
B22	Brake Pedal Position Sensor	N8D	In the passenger compartment, behind the brake pedal assembly	*Below Left Side of the Instrument Panel Components (N8D)*	*B22 Brake Pedal Position Sensor (N8D)*
B23A	Camshaft Position Sensor – Bank 1 Exhaust	LFX	In the engine compartment, near front, right of center, above of the bank 1 exhaust camshaft position actuator solenoid valve	*Left Front of the Engine Components (LFX)*	*B23A Camshaft Position Sensor - Bank 1 Exhaust (LFX)*
B23B	Camshaft Position Sensor – Bank 1 Intake	LFX	In the engine compartment, near front, right of center, left of the bank 1 intake camshaft position actuator solenoid valve	*Left Front of the Engine Components (LFX)*	*B23B Camshaft Position Sensor - Bank 1 Intake (LFX)*
B23C	Camshaft Position Sensor – Bank 2 Exhaust	LFX	In the engine compartment, near front, left of center, above of the bank 2 exhaust camshaft position actuator solenoid valve	*Left Front of the Engine Components (LFX)*	*B23C Camshaft Position Sensor - Bank 2 Exhaust (LFX)*
B23D	Camshaft Position Sensor – Bank 2 Intake	LFX	In the engine compartment, near front, left of center, right of the bank 2 intake camshaft position actuator solenoid valve	*Left Front of the Engine Components (LFX)*	*B23D Camshaft Position Sensor - Bank 2 Intake (LFX)*
B23E	Camshaft Position Sensor – Exhaust	LCV	In the engine compartment, rear left of center, mounted to cylinder head, on left side	*Left Front of the Engine Components (LCV)*	*B23E Camshaft Position Sensor - Exhaust (LCV)*
B23F	Camshaft Position Sensor – Intake	LCV	In the engine compartment, rear right of center, mounted to cylinder head, on right lower side	*Right Rear of Engine Components (LCV)*	*B23F Camshaft Position Sensor - Intake (LCV)*
B24	Cellular Phone Microphone	IO4/IO5/IO6/UE1	In the passenger compartment, at the front center of the headliner, in the overhead console	• *Headliner Components (Extended Cab)* • *Headliner Components (Crew Cab)*	*B24 Cellular Phone Microphone (UE1)*
B25B	Clutch Pedal Position Sensor	N8D	In the passenger compartment, under the driver side of the instrument panel, near top of clutch pedal	*Below Left Side of the Instrument Panel Components (N8D)*	*B25B Clutch Pedal Position Sensor (N8D)*
B26	Crankshaft Position Sensor	LCV	In the engine compartment, right of center, near rear, mounted to right side of engine block	*Right Bottom of Engine Components (LCV)*	*B26 Crankshaft Position Sensor (LCV)*
B26	Crankshaft Position Sensor	LFX	In the engine compartment, right of center, near rear, mounted to right side of engine block	*Right Bottom of Engine Components (LFX)*	*B26 Crankshaft Position Sensor (LFX)*
B34	Engine Coolant Temperature Sensor	LCV	In the engine compartment, rear center, mounted to coolant outlet at rear of cylinder head	*Right Rear of Engine Components (LCV)*	*B34 Engine Coolant Temperature Sensor (LCV)*
B34	Engine Coolant Temperature Sensor	LFX	In the engine compartment, left of center, near rear, mounted to bank 2 cylinder head, near exhaust pipe	• *Left Front of the Engine Components (LFX)* • *Right Rear of Engine Components (LFX)*	*B34 Engine Coolant Temperature Sensor (LFX)*

B35	Engine Oil Level Switch	LCV	In the engine compartment, right of center, near middle, mounted to right side of oil pan	*Right Rear of Engine Components (LCV)*	*B35 Engine Oil Level Switch (LCV)*
B35	Engine Oil Level Switch	LFX	In the engine compartment, mounted to right side of oil pan above the drain plug	*Right Bottom of Engine Components (LFX)*	*B35 Engine Oil Level Switch (LFX)*
B37B	Engine Oil Pressure Sensor	LCV	In the engine compartment, right of center, near middle, mounted to right side of engine block	*Right Bottom of Engine Components (LCV)*	*B37B Engine Oil Pressure Sensor (LCV)*
B37B	Engine Oil Pressure Sensor	LFX	In the engine compartment, left of center, near front, mounted to oil filter adapter	*Left Front of the Engine Components (LFX)*	*B37B Engine Oil Pressure Sensor (LFX)*
B39	A/C Evaporator Temperature Sensor	—	In the passenger compartment, part of HVAC module, behind the instrument panel	*HVAC Assembly Components*	*B39 A/C Evaporator Temperature Sensor*
B46	Fuel Level Sensor	—	Under the vehicle, inside the fuel tank	—	—
B47	Fuel Pressure Sensor	—	On the vehicle underbody, on the fuel line, near the transmission crossmember mount	• *Chassis Underbody Components (Extended Cab)* • *Chassis Components (Crew Cab)*	*B47 Fuel Pressure Sensor*
B47B	Fuel Rail Pressure Sensor	LCV	In the engine compartment, right of center, rear of middle, mounted to right side of fuel rail, below intake manifold	—	*B47B Fuel Rail Pressure Sensor (LCV)*
B47B	Fuel Rail Pressure Sensor	LFX	In the engine compartment, near middle rear, mounted to bank 2 fuel rail on inboard side of bank 2 cylinder head	—	*B47B Fuel Rail Pressure Sensor (LFX)*
B52A	Heated Oxygen Sensor 1	LCV	In the engine compartment, left of center, in the exhaust manifold	*Left Front of the Engine Components (LCV)*	*B52A Heated Oxygen Sensor 1 (LCV)*
B52B	Heated Oxygen Sensor 2	LCV	In the engine compartment, rear, left of center, mounted to catalytic converter, near transmission	*Left Front of the Engine Components (LCV)*	*B52B Heated Oxygen Sensor 2 (LCV)*
B52C	Heated Oxygen Sensor – Bank 1 Sensor 1	LFX	In the engine compartment, right of center, near rear, on exhaust pipe, before the catalytic converter	*Right Rear of Engine Components (LFX)*	*B52C Heated Oxygen Sensor - Bank 1 Sensor 1 (LFX)*
B52D	Heated Oxygen Sensor – Bank 1 Sensor 2	LFX	In the engine compartment, right of center, rear, on exhaust pipe, after the catalytic converter	*Right Rear of Engine Components (LFX)*	*B52D Heated Oxygen Sensor - Bank 1 Sensor 2 (LFX)*
B52E	Heated Oxygen Sensor – Bank 2 Sensor 1	LFX	In the engine compartment, left of center, near rear, on exhaust pipe, before the catalytic converter	*Left Front of the Engine Components (LFX)*	*B52E Heated Oxygen Sensor - Bank 2 Sensor 1 (LFX)*
B52F	Heated Oxygen Sensor – Bank 2 Sensor 2	LFX	In the engine compartment, left of center, rear, on exhaust pipe, after the catalytic converter	*Right Rear of Engine Components (LFX)*	*B52F Heated Oxygen Sensor - Bank 2 Sensor 2 (LFX)*
B55	Hood Ajar Switch	—	In the front of the engine compartment, on the hood latch	*Left Front of Engine Compartment Components*	*B55 Hood Ajar Switch*
B59L	Front Impact Sensor – Left	—	In the engine compartment, at front, left of center, mounted to the rear of the radiator support	*Left Front of Engine Compartment Components*	*B59L Front Impact Sensor - Left*
B59R	Front Impact Sensor – Right	—	In the engine compartment, at front, right of center, mounted to the rear of the radiator support	*Right Front of Engine Compartment Components*	*B59R Front Impact Sensor - Right*
B60	Passenger Presence Sensor	—	In the passenger compartment, under the passenger seat cushion	—	—

B61P	Seat Belt Tension Sensor – Passenger	—	In the passenger compartment, at the base of the passenger seat, part of the passenger seat belt buckle assembly	—	*B61P Seat Belt Tension Sensor - Passenger (AL0)*
B63LF	Side Impact Sensor – Left Front	—	In the driver door, behind the trim panel, toward the rear of the door	*Driver Door Components*	*B63LF Side Impact Sensor - Left Front*
B63LR	Side Impact Sensor – Left Rear	—	In the left rear door, behind the trim panel, toward the rear of the door	• *Left Passenger Components (Extended Cab)* • *Left Passenger Components (Crew Cab)*	*B63LR Side Impact Sensor - Left Rear*
B63RF	Side Impact Sensor – Right Front	—	In the passenger door, behind the trim panel, toward the rear of the door	*Passenger Door Components*	*B63RF Side Impact Sensor - Right Front*
B63RR	Side Impact Sensor – Right Rear	—	In the right rear door, behind the trim panel, toward the rear of the door	• *Right Passenger Components (Extended Cab)* • *Right Passenger Components (Crew Cab)*	*B63RR Side Impact Sensor - Right Rear*
B68A	Knock Sensor 1	LCV	In the engine compartment, right of center, forward of middle, mounted to right side of engine block	*Right Bottom of Engine Components (LCV)*	*B68A Knock Sensor 1 (LCV)*
B68A	Knock Sensor 1	LFX	In the engine compartment, right of center, near middle, mounted to right side of engine block	*Right Bottom of Engine Components (LFX)*	*B68A Knock Sensor 1 (LFX)*
B68B	Knock Sensor 2	LCV	In the engine compartment, right of center, rear of middle, mounted to right side of engine block	*Right Bottom of Engine Components (LCV)*	*B68B Knock Sensor 2 (LCV)*
B68B	Knock Sensor 2	LFX	In the engine compartment, left of center, near middle, mounted to left side of engine block	*Left Front of the Engine Components (LFX)*	*B68B Knock Sensor 2 (LFX)*
B74	Manifold Absolute Pressure Sensor	LCV	In the engine compartment, right of center, near front, mounted to right side of intake manifold	*Right Bottom of Engine Components (LCV)*	*B74 Manifold Absolute Pressure Sensor*
B74	Manifold Absolute Pressure Sensor	LFX	In the engine compartment, center near rear, mounted to top of intake manifold	*Right Rear of Engine Components (LFX)*	*B74 Manifold Absolute Pressure Sensor*
B75C	Multifunction Intake Air Sensor	—	Right side of the engine compartment, in the air intake duct	• *Right Rear of Engine Components (LFX)* • *Right Rear of Engine Components (LCV)*	*B75C Multifunction Intake Air Sensor*
B80	Park Brake Switch	—	In the passenger compartment, at the left side of the Driver Footwell	• *Below Left Side of the Instrument Panel Components (N8D)* • *Below Left Side of the Instrument Panel Components (MYB)* • *Left Passenger Components (Crew Cab)*	*B80 Park Brake Switch*
B81B	Park Position Switch	MYB	In the passenger compartment, center near front, on shift lever within floor console	—	—
B87	Rearview Camera	UVC	In the lower center of the tailgate handle assembly	*Rear of Vehicle Components*	*B87 Rearview Camera (UVC)*
B88D	Seat Belt Switch – Driver	—	In the passenger compartment, part of the driver seat belt buckle	*Driver Seat Components*	*B88D Seat Belt Switch - Driver*

B88P	Seat Belt Switch – Passenger	—	In the passenger compartment, part of the passenger front seat belt buckle	*Passenger Seat Components*	*B88P Seat Belt Switch - Passenger*
B107	Accelerator Pedal Position Sensor	—	In the passenger compartment, on the driver floor board above the accelerator pedal	• *Below Left Side of the Instrument Panel Components (MYB)* • *Below Left Side of the Instrument Panel Components (N8D)*	*B107 Accelerator Pedal Position Sensor*
B137	Power Steering Shaft Torque Sensor	—	In the engine compartment, lower left, part of power steering assembly	—	—
B150	Fuel Tank Pressure Sensor	—	On the underbody, mounted to the fuel pump and sender assembly	• *Chassis Components (Crew Cab)* • *Underbody Components (2 of 3)*	*B150 Fuel Tank Pressure Sensor*
B153D	Seat Belt Buckle – Driver	—	In the passenger compartment, at the inboard of the driver seat	—	—
B153P	Seat Belt Buckle – Passenger	—	In the passenger compartment, at the inboard of the passenger seat	—	—
B160	Windshield Temperature and Inside Moisture Sensor	C68	In the passenger compartment, behind the inside rearview mirror, near the windshield	• *Headliner Components (Extended Cab)* • *Headliner Components (Crew Cab)*	*B160 Windshield Temperature and Inside Moisture Sensor (C68)*
B203	Engine Coolant Radiator Temperature Sensor	LCV	In the engine compartment, lower left corner of radiator	*Radiator Assembly Components*	*B203 Engine Coolant Radiator Temperature Sensor*
B227	Gear Position Sensor	NQ6	Under the vehicle, on the top rear of the transfer case	*Transmission Components (MYB with NQ6/NQ7)*	*B227 Gear Position Sensor (NQ6)*
C1	Battery	—	In the engine compartment, on the left side, near the underhood fuse block	*Left Side of Engine Compartment Components (1 of 2)*	*C1 Battery X2*
C3	Telematics Communication Interface Control Module Battery	UE1	In the passenger compartment, right side of the instrument panel, behind the glove box, near the telematics communication interface control module	• *Right Passenger Components (Extended Cab)* • *Right Passenger Components (Crew Cab)*	*C3 Telematics Communication Interface Control Module Battery (UE1)*
E2LF	Side Marker Lamp – Left Front	—	Outside of the vehicle, on the left front	—	—
E2RF	Side Marker Lamp – Right Front	—	Outside of the vehicle, on the right front	—	—
E4AA	Park Lamp – Lower Left	Z88	Outside of the vehicle, front left, in the headlamp assembly	—	—
E4AB	Park Lamp – Lower Right	Z88	Outside of the vehicle, front right, in the headlamp assembly	—	—
E4E	Headlamp – Left High Beam	—	Outside of the vehicle, at the left front of the vehicle, in the headlamp assembly	*Front of Vehicle Components*	—
E4F	Headlamp – Right High Beam	—	Outside of the vehicle, at the right front of the vehicle, in the headlamp assembly	*Front of Vehicle Components*	—
E4G	Headlamp – Left Low Beam	—	Outside of the vehicle, at the left front of the vehicle, in the headlamp assembly	*Front of Vehicle Components*	—
E4H	Headlamp – Right Low Beam	—	Outside of the vehicle, at the right front of the vehicle, in the headlamp assembly	*Front of Vehicle Components*	—

E4J	Park Lamp – Left Front	—	Outside of the vehicle, at the left front of the vehicle, in the headlamp assembly	—	—
E4K	Park Lamp – Right Front	—	Outside of the vehicle, at the right front of the vehicle, in the headlamp assembly	—	—
E4LF	Turn Signal Lamp – Left Front	—	Outside of the vehicle, at the left front of the vehicle, in the headlamp assembly	*Front of Vehicle Components*	—
E4RF	Turn Signal Lamp – Right Front	—	Outside of the vehicle, at the right front of the vehicle, in the headlamp assembly	*Front of Vehicle Components*	—
E5A	Backup Lamp – Left	—	Outside of the vehicle, at the left rear corner of the vehicle, part of the left tail lamp assembly	*Rear of Vehicle Components*	—
E5B	Backup Lamp – Right	—	Outside of the vehicle, at the right rear corner of the vehicle, part of the right tail lamp assembly	*Rear of Vehicle Components*	—
E5E	Tail Lamp – Left	—	Outside of the vehicle, at the left rear corner of the vehicle, part of the left tail lamp assembly	*Rear of Vehicle Components*	—
E5F	Tail Lamp – Right	—	Outside of the vehicle, at the right rear corner of the vehicle, part of the right tail lamp assembly	*Rear of Vehicle Components*	—
E5L	Stop Lamp – Left	—	Outside of the vehicle, at the left rear corner of the vehicle, part of the left tail lamp assembly	*Rear of Vehicle Components*	—
E5R	Stop Lamp – Right	—	Outside of the vehicle, at the right rear corner of the vehicle, part of the right tail lamp assembly	*Rear of Vehicle Components*	—
E6	Center High Mounted Stop Lamp	—	Outside of the vehicle, at the rear center of the roof	*Rear of Vehicle Components*	*E6 Center High Mounted Stop Lamp*
E7L	License Plate Lamp – Left	—	Outside of the vehicle, at the rear center of the vehicle	*Rear of Vehicle Components*	*E7L License Plate Lamp - Left*
E7R	License Plate Lamp – Right	—	Outside of the vehicle, at the rear center of the vehicle	*Rear of Vehicle Components*	*E7R License Plate Lamp - Right*
E13LA	Headlamp Assembly – Left	—	Outside of the vehicle, at the front left of the vehicle	—	—
E13RA	Headlamp Assembly – Right	—	Outside of the vehicle, at the front right of the vehicle	—	—
E14A	Seat Heating Element – Driver Back	KA1	In the passenger compartment, in the driver seat back	*Driver Seat Components*	*E14A Seat Heating Element - Driver Back (KA1)*
E14B	Seat Heating Element – Driver Cushion	KA1	In the passenger compartment, part of the driver seat cushion	*Driver Seat Components*	*E14B Seat Heating Element - Driver Cushion (KA1)*
E14C	Seat Heating Element – Passenger Back	KA1	In the passenger compartment, in the passenger seat back	*Passenger Seat Components*	*E14C Seat Heating Element - Passenger Back (KA1)*
E14D	Seat Heating Element – Passenger Cushion	KA1	In the passenger compartment, part of the passenger seat cushion	*Passenger Seat Components*	*E14D Seat Heating Element - Passenger Cushion (KA1)*
E17D	Outside Rearview Mirror Glass – Driver	DL9	Outside of the vehicle, on driver door, part of outside rearview mirror	—	• *E17D Outside Rearview Mirror Glass - Driver X1 (DL9)* • *E17D Outside Rearview Mirror Glass - Driver X2 (DL9)*

E17P	Outside Rearview Mirror Glass – Passenger	DL9	Outside of the vehicle, on front passenger door, part of outside rearview mirror	—	• *E17P Outside Rearview Mirror Glass - Passenger X1 (DL9)* • *E17P Outside Rearview Mirror Glass - Passenger X2 (DL9)*
E18	Rear Defogger Grid	C49	In the passenger compartment, on the inside of the rear window	*Rear of Vehicle Components*	• *E18 Rear Defogger Grid X1 (C49)* • *E18 Rear Defogger Grid X2 (C49)*
E29LF	Fog Lamp – Left Front	T3U	At the left front corner of the vehicle, below the left headlamp assembly	*Front of Vehicle Components*	*E29LF Fog Lamp - Left Front (T3U)*
E29RF	Fog Lamp – Right Front	T3U	At the right front corner of the vehicle, below the right headlamp assembly	*Front of Vehicle Components*	*E29RF Fog Lamp - Right Front (T3U)*
E31L	Sunshade Mirror Lamp – Left	D6I	In the passenger compartment, on the left sunshade	• *Headliner Components (Extended Cab)* • *Headliner Components (Crew Cab)*	*E31L Sunshade Mirror Lamp - Left (D6I)*
E31R	Sunshade Mirror Lamp – Right	D6I	In the passenger compartment, on the right sunshade	• *Headliner Components (Extended Cab)* • *Headliner Components (Crew Cab)*	*E31R Sunshade Mirror Lamp - Right (D6I)*
E33L	Cargo Lamp – Left	—	Outside of the vehicle, at the rear center of the roof, part of the center high mounted stop lamp	—	—
E33R	Cargo Lamp – Right	—	Outside of the vehicle, at the rear center of the roof, part of the center high mounted stop lamp	—	—
E36AH	Dome Lamp	TCA	In the passenger compartment, center of roof	—	—
E37F	Dome/Reading Lamps – Front	C74	In the passenger compartment, in the headliner between the front and second row seating	• *Headliner Components (Extended Cab)* • *Headliner Components (Crew Cab)*	*E37F Dome/Reading Lamps - Front (C74)*
E37R	Dome/Reading Lamps – Rear	TR0	In the passenger compartment, on the roof	• *Headliner Components (Extended Cab)* • *Headliner Components (Crew Cab)*	*E37R Dome/Reading Lamps - Rear (TR0)*
E41	Engine Coolant Thermostat Heater	LCV	In the engine compartment, top left front of the engine	• *Right Bottom of Engine Components (LCV)* • *Left Front of the Engine Components (LCV)*	*E41 Engine Coolant Thermostat Heater (LCV)*
E42L	Tail Lamp Assembly – Left	—	Outside of the vehicle, at the left rear corner of the vehicle	—	—
E42R	Tail Lamp Assembly – Right	—	Outside of the vehicle, at the right rear corner of the vehicle	—	—
F101	Passenger Instrument Panel Air Bag	—	In the passenger compartment, at the top of the passenger side of the instrument panel	*Behind the Instrument Panel Components*	*F101 Passenger Instrument Panel Air Bag X1*
F105L	Roof Rail Air Bag – Left	—	In the passenger compartment, along the left roof rail	• *Left Passenger Components (Extended Cab)* • *Left Passenger Components (Crew Cab)*	*F105L Roof Rail Air Bag - Left*

F105R	Roof Rail Air Bag – Right	—	In the passenger compartment, along the right roof rail	• *Right Passenger Components (Extended Cab)* • *Right Passenger Components (Crew Cab)*	*F105R Roof Rail Air Bag - Right*
F106D	Seat Side Air Bag – Driver	—	In the passenger compartment, on the left side of the left front seat back	*Driver Seat Components*	*F106D Seat Side Air Bag - Driver*
F106P	Seat Side Air Bag – Passenger	—	In the passenger compartment, on the right side of the right front seat back	*Passenger Seat Components*	*F106P Seat Side Air Bag - Passenger*
F107	Steering Wheel Air Bag	—	In the passenger compartment, in the center of the steering wheel	*Steering Column Components*	• *F107 Steering Wheel Air Bag X1* • *F107 Steering Wheel Air Bag X2*
F112D	Seat Belt Retractor Pretensioner – Driver	43	In the passenger compartment, at the base of the left B—pillar	*Left Passenger Components (Crew Cab)*	*F112D Seat Belt Retractor Pretensioner - Driver*
F112D	Seat Belt Retractor Pretensioner – Driver	53	In the passenger compartment, at the lower front of the left rear door	*Left Rear Door Components (Extended Cab)*	*F112D Seat Belt Retractor Pretensioner - Driver*
F112P	Seat Belt Retractor Pretensioner – Passenger	43	In the passenger compartment, at the base of the right B—pillar	*Right Passenger Components (Crew Cab)*	*F112P Seat Belt Retractor Pretensioner - Passenger*
F112P	Seat Belt Retractor Pretensioner – Passenger	53	In the passenger compartment, at the lower front of the right rear door	*Right Rear Door Components (Extended Cab)*	*F112P Seat Belt Retractor Pretensioner - Passenger*
F113D	Seat Belt Anchor Pretensioner – Driver	43	In the passenger compartment, between driver seat and center console, attached to driver seat	*Driver Seat Components*	*F113D Seat Belt Anchor Pretensioner – Driver*
F113D	Seat Belt Anchor Pretensioner – Driver	53	In the passenger compartment, at the lower front of the left rear door	*Left Rear Door Components (Extended Cab)*	*F113D Seat Belt Anchor Pretensioner – Driver*
F113P	Seat Belt Anchor Pretensioner – Passenger	43	In the passenger compartment, between passenger seat and center console, attached to passenger seat	*Passenger Seat Components*	*F113P Seat Belt Anchor Pretensioner - Passenger*
F113P	Seat Belt Anchor Pretensioner – Passenger	53	In the passenger compartment, at the lower front of the right rear door	*Right Rear Door Components (Extended Cab)*	*F113P Seat Belt Anchor Pretensioner - Passenger*
G1	A/C Compressor	—	In the engine compartment, mounted on the lower front of the engine	• *Left Front of the Engine Components (LFX)* • *Left Front of the Engine Components (LCV)*	*G1 A/C Compressor*
G10	Cooling Fan Motor	—	At the front of the engine compartment, in the center of the fan assembly	—	—
G12	Fuel Pump	—	Under the vehicle, in the fuel tank, part of the fuel pump and level sensor assembly	—	—
G13	Generator	—	In the engine compartment, at the top left front of the engine	• *Right Rear of Engine Components (LFX)* • *Right Rear of Engine Components (LCV)*	*G13 Generator X1*
G18	High Pressure Fuel Pump	LCV	In the engine compartment, right of center, near rear, mounted to right side of cylinder head	*Right Rear of Engine Components (LCV)*	*G18 High Pressure Fuel Pump (LCV)*
G18	High Pressure Fuel Pump	LFX	In the engine compartment, left of center, rear, mounted to rear of bank 2 cylinder head	*Right Rear of Engine Components (LFX)*	*G18 High Pressure Fuel Pump (LFX)*

G24	Windshield Washer Pump	—	In the engine compartment, attached to the washer fluid reservoir	*Left Front of Engine Compartment Components*	*G24 Windshield Washer Pump*
K8	Blower Motor Control Module	—	In the passenger compartment, right side of the instrument panel, behind the glove box	*Below Right Side of the Instrument Panel Components*	*K8 Blower Motor Control Module*
K9	Body Control Module	—	In the passenger compartment, at the left side of the steering column	*Behind the Instrument Panel Components*	• *K9 Body Control Module X1* • *K9 Body Control Module X2* • *K9 Body Control Module X3* • *K9 Body Control Module X4* • *K9 Body Control Module X5* • *K9 Body Control Module X6* • *K9 Body Control Module X7*
K17	Electronic Brake Control Module	—	On vehicle underbody, near the rear of the transmission, on the left frame rail	• *Chassis Underbody Components (Extended Cab)* • *Chassis Components (Crew Cab)*	*K17 Electronic Brake Control Module*
K20	Engine Control Module	—	In the engine compartment, to the right of the engine	—	• *K20 Engine Control Module X1* • *K20 Engine Control Module X2* • *K20 Engine Control Module X3*
K22	Cooling Fan Control Module	—	In the engine compartment, right of the engine, near radiator	*Radiator Assembly Components*	*K22 Cooling Fan Control Module X1*
K29	Seat Heating Control Module	KA1	In the passenger compartment, under the front of the passenger seat	*Passenger Seat Components*	• *K29 Seat Heating Control Module X1 (KA1)* • *K29 Seat Heating Control Module X2 (KA1)*
K33	HVAC Control Module	—	In the passenger compartment, center of the Instrument Panel, behind the HVAC controls	*Behind the Instrument Panel Components*	• *K33 HVAC Control Module X1* • *K33 HVAC Control Module X2* • *K33 HVAC Control Module X3*
K36	Inflatable Restraint Sensing and Diagnostic Module	—	In the passenger compartment, under the center console	• *Left Passenger Components (Extended Cab)* • *Left Passenger Components (Crew Cab)*	• *K36 Inflatable Restraint Sensing and Diagnostic Module X1* • *K36 Inflatable Restraint Sensing and Diagnostic Module X2*
K38	Chassis Control Module	LFX	Under the vehicle, mounted to the bracket above the spare tire	• *Underbody Components (2 of 3)* • *Chassis Components (Crew Cab)*	*K38 Chassis Control Module*
K43	Power Steering Control Module	—	On the underbody, on the power steering rack assembly	*Underbody Components (1 of 3)*	• *K43 Power Steering Control Module X1* • *K43 Power Steering Control Module X2*

K69	Transfer Case Control Module	NQ6/NQ7	In the passenger compartment, under the instrument panel, behind glove box, right of the HVAC assembly	• *Right Passenger Components (Extended Cab)* • *Right Passenger Components (Crew Cab)*	• *K69 Transfer Case Control Module X1 (NQ6/NQ7)* • *K69 Transfer Case Control Module X2 (NQ6/NQ7)* • *K69 Transfer Case Control Module X3 (NQ6/NQ7)*
K71	Transmission Control Module	MYB	Underneath the vehicle, inside the automatic transmission, part of the control solenoid valve assembly	*Transmission Components (MYB with NQ6/NQ7)*	—
K73	Telematics Communication Interface Control Module	UE1	In the passenger compartment, right side of the instrument panel, behind the glove box	• *Right Passenger Components (Extended Cab)* • *Right Passenger Components (Crew Cab)*	• *K73 Telematics Communication Interface Control Module X1 (UE1)* • *K73 Telematics Communication Interface Control Module X2 (UE1)* • *K73 Telematics Communication Interface Control Module X5 (UE1)* • *K73 Telematics Communication Interface Control Module X7 (UE1)*
K74	Human Machine Interface Control Module	IO5/IO6	In the passenger compartment, center of the instrument panel, behind the radio buttons	*Behind the Instrument Panel Components*	• *K74 Human Machine Interface Control Module X1* • *K74 Human Machine Interface Control Module X2* • *K74 Human Machine Interface Control Module X4*
K77	Remote Control Door Lock Receiver	—	In the passenger compartment, above the right rear of the headliner	• *Headliner Components (Extended Cab)* • *Headliner Components (Crew Cab)*	*K77 Remote Control Door Lock Receiver*
K85	Passenger Presence Module	AL0	In the passenger compartment, under the front of the front passenger seat cushion	*Passenger Seat Components*	*K85 Passenger Presence Module*
K89	Immobilizer Control Module	—	In the passenger compartment, on the driver side, near the ignition cylinder	*Front of the Instrument Panel Components*	*K89 Immobilizer Control Module*
K109	Frontview Camera Module	UFL/UEU	In the passenger compartment, behind the inside rearview mirror	• *Headliner Components (Extended Cab)* • *Headliner Components (Crew Cab)*	*K109 Frontview Camera Module (UFL/UEU)*
K111	Fuel Pump Driver Control Module	LCV	Under the vehicle, mounted to the bracket above the spare tire	*Underbody Components (2 of 3)*	*K111 Fuel Pump Driver Control Module (LCV)*
M4	Air Inlet Door Actuator	—	In the passenger compartment, behind the instrument panel glove box	*HVAC Assembly Components*	*M4 Air Inlet Door Actuator*
M6	Air Temperature Door Actuator	—	In the passenger compartment, part of HVAC module, behind the instrument panel	*HVAC Assembly Components*	*M6 Air Temperature Door Actuator*
M7	Transmission Shift Lock Control Solenoid Actuator	MYB	In the passenger compartment, center near front, on the shift lever within floor console	—	—
M9	Brake Booster Pump Motor	LFX	In the engine compartment, near front, right of center, mounted to the front of bank 1 cylinder head	*Right Bottom of Engine Components (LFX)*	*M9 Brake Booster Pump Motor (LFX)*

M26	Front Axle Engagement Actuator	NQ6/NQ7	Under the vehicle, on the rear of the transfer case	*Underbody Components (1 of 3)*	*M26 Front Axle Engagement Actuator (NQ6/NQ7)*
M37	Mode Door Actuator	—	In the passenger compartment, behind the instrument panel, on the upper left side of the HVAC module	*HVAC Assembly Components*	*M37 Mode Door Actuator*
M38	Power Steering Motor	—	Under the vehicle, part of the steering gear assembly	—	—
M51D	Seat Horizontal Motor – Driver	AH6	In the passenger compartment, under the center of the driver seat, between the seat tracks	*Driver Seat Components*	*M51D Seat Horizontal Motor – Driver (AH6)*
M51P	Seat Horizontal Motor – Passenger	AAQ	In the passenger compartment, under the center of the passenger seat, between the seat tracks	*Passenger Seat Components*	*M51P Seat Horizontal Motor - Passenger (AAQ)*
M52D	Seat Lumbar Support Horizontal Motor – Driver	AL9	In the passenger compartment, part of the driver seat back	*Driver Seat Back Components*	*M52D Seat Lumbar Support Horizontal Motor - Driver (AL9)*
M52P	Seat Lumbar Support Horizontal Motor – Passenger	AAQ	In the passenger compartment, part of the passenger seat back	*Passenger Seat Back Components*	*M52P Seat Lumbar Support Horizontal Motor - Passenger (AAQ)*
M55D	Seat Rear Vertical Motor – Driver	AH6	In the passenger compartment, under the front of the driver seat, next to the left seat track	*Driver Seat Components*	*M55D Seat Rear Vertical Motor - Driver (AH6)*
M55P	Seat Rear Vertical Motor – Passenger	AAQ	In the passenger compartment, under the front of the passenger seat, next to the left seat track	*Passenger Seat Components*	*M55P Seat Rear Vertical Motor - Passenger (AAQ)*
M64	Starter Motor	LCV	In the engine compartment, lower right rear of the engine	*Right Rear of Engine Components (LCV)*	*M64 Starter Motor X1 (LCV)*
M64	Starter Motor	LFX	In the engine compartment, lower left rear of the engine	*Left Front of the Engine Components (LFX)*	*M64 Starter Motor X1 (LFX)*
M74D	Window Motor – Driver	AXG	In the passenger compartment, behind the driver door trim panel, at the center of the door	*Driver Door Components*	*M74D Window Motor - Driver*
M74LR	Window Motor – Left Rear	AXG	In the passenger compartment, center of the left rear door, behind the door trim panel	*Left Rear Door Components (Crew Cab)*	*M74LR Window Motor - Left Rear (Crew Cab)*
M74P	Window Motor – Passenger	AXG	In the passenger compartment, behind the front passenger door trim panel, at the center of the door	*Passenger Door Components*	*M74P Window Motor - Passenger*
M74RR	Window Motor – Right Rear	AXG	In the passenger compartment, center of the right rear door, behind the door trim panel	*Right Rear Door Components (Crew Cab)*	*M74RR Window Motor - Right Rear (Crew Cab)*
M75	Windshield Wiper Motor	—	At the left rear of the engine compartment, near the windshield	*Left Side of Engine Compartment Components (1 of 2)*	*M75 Windshield Wiper Motor*
M77D	Outside Rearview Mirror Motor – Driver	DL6/DL9	Outside of the vehicle, on driver door, part of outside rearview mirror	—	*M77D Outside Rearview Mirror Motor - Driver (DL6/DL9)*
M77P	Outside Rearview Mirror Motor – Passenger	DL6/DL9	Outside of the vehicle, on passenger door, part of outside rearview mirror	—	*M77P Outside Rearview Mirror Motor - Passenger (DL6/DL9)*
M93	Key Capture Solenoid Actuator	MYB	In the passenger compartment, left front of instrument panel, attached to the right side of steering column	*Front of the Instrument Panel Components*	*M93 Key Capture Solenoid Actuator (MYB)*
M96	Active Grille Air Shutter Actuator	LCV	At front of the vehicle, center, behind upper grille	—	*M96 Active Grille Air Shutter Actuator (LCV)*
M96	Active Grille Air Shutter Actuator	LFX	At front of the vehicle, center, behind upper grille	—	*M96 Active Grille Air Shutter Actuator (LFX)*

P2	Transmission Shift Lever Position Indicator	MYB	In the passenger compartment, center, near front, at top of floor console, near the shift lever	*Center Console Components (MYB)*	*P2 Transmission Shift Lever Position Indicator (MYB)*
P7	Display	—	In the passenger compartment, front center, mounted to instrument panel, part of info display module	—	—
P9	Driver Information Center Display	—	In the passenger compartment, left center, mounted to instrument panel, part of instrument cluster	—	—
P13	Horn Assembly	—	In the engine compartment, lower left corner of the radiator support	*Right Front of Engine Compartment Components*	*P13 Horn Assembly*
P14	Passenger Air Bag Disabled Indicator	—	In the passenger compartment, center of the overhead console	• *Headliner Components (Crew Cab)* • *Headliner Components (Extended Cab)*	*P14 Passenger Air Bag Disabled Indicator*
P16	Instrument Cluster	—	In the passenger compartment, at the top of the driver side of the instrument panel, above the steering column	*Front of the Instrument Panel Components*	*P16 Instrument Cluster*
P17	Info Display Module	—	In the passenger compartment, at the top center of the instrument panel, above the radio controls	• *Behind the Instrument Panel Components* • *Front of the Instrument Panel Components*	• *P17 Info Display Module X1* • *P17 Info Display Module X3*
P19AC	Speaker – Subwoofer	UQA	In the passenger compartment, under the instrument panel, forward of the center console	—	*P19B Speaker - Center Instrument Panel (UQA)*
P19AG	Speaker – Left Front Door	—	In the passenger compartment, at the front of the left front door, behind the door trim panel	*Driver Door Components*	*P19AG Speaker - Left Front Door*
P19AH	Speaker – Right Front Door	—	In the passenger compartment, at the front of the right front door, behind the door trim panel	*Passenger Door Components*	*P19AH Speaker - Right Front Door*
P19AL	Speaker – Left Rear Door	—	In the passenger compartment, in the lower left rear door, behind the door panel	• *Left Rear Door Components (Extended Cab)* • *Left Rear Door Components (Crew Cab)*	*P19AL Speaker - Left Rear Door*
P19AM	Speaker – Right Rear Door	—	In the passenger compartment, in the lower right rear door, behind the door panel	• *Right Rear Door Components (Extended Cab)* • *Right Rear Door Components (Crew Cab)*	• *P19AM Speaker - Right Rear Door (LWB)* • *P19AM Speaker - Right Rear Door (SWB)*
P19H	Speaker – Left Front Tweeter	—	In the passenger compartment, in the upper left of the instrument panel	—	• *P19H Speaker - Left Front Tweeter (UQA)* • *P19H Speaker - Left Front Tweeter (UQ3)*
P19V	Speaker – Right Front Tweeter	—	In the passenger compartment, in the upper right of the instrument panel	—	• *P19V Speaker - Right Front Tweeter (UQA)* • *P19V Speaker - Right Front Tweeter (UQ3)*
P43	Collision Alert Indicators	UEU	In the passenger compartment, behind the upper left of the instrument panel, above the instrument cluster	—	*P43 Collision Alert Indicators (UEU)*

Q2	A/C Compressor Clutch	C67/C68	In the engine compartment, on the right front of the engine	• *Left Front of the Engine Components (LFX)* • *Left Front of the Engine Components (LCV)*	*Q2 A/C Compressor Clutch*
Q5	Brake Pressure Modulator	—	In the engine compartment, right rear, behind strut tower, attached to the electronic brake control module	—	—
Q6A	Camshaft Position Actuator Solenoid Valve – Bank 1 Exhaust	LFX	In the engine compartment, near front, right of center, below of the bank 1 exhaust camshaft position sensor	*Left Front of the Engine Components (LFX)*	*Q6A Camshaft Position Actuator Solenoid Valve - Bank 1 Exhaust (LFX)*
Q6B	Camshaft Position Actuator Solenoid Valve – Bank 1 Intake	LFX	In the engine compartment, near front, right of center, between the bank 1 camshaft position sensors	*Left Front of the Engine Components (LFX)*	*Q6B Camshaft Position Actuator Solenoid Valve - Bank 1 Intake (LFX)*
Q6C	Camshaft Position Actuator Solenoid Valve – Bank 2 Exhaust	LFX	In the engine compartment, near front, left of center, below of the bank 2 exhaust camshaft position sensor	*Left Front of the Engine Components (LFX)*	*Q6C Camshaft Position Actuator Solenoid Valve - Bank 2 Exhaust (LFX)*
Q6D	Camshaft Position Actuator Solenoid Valve – Bank 2 Intake	LFX	In the engine compartment, near front, left of center, between the bank 2 camshaft position sensors	*Left Front of the Engine Components (LFX)*	*Q6D Camshaft Position Actuator Solenoid Valve - Bank 2 Intake (LFX)*
Q6E	Camshaft Position Actuator Solenoid Valve – Exhaust	LCV	In the engine compartment, front, left of center, mounted to camshaft cover on left side	*Left Front of the Engine Components (LCV)*	*Q6E Camshaft Position Actuator Solenoid Valve - Exhaust (LCV)*
Q6F	Camshaft Position Actuator Solenoid Valve – Intake	LCV	In the engine compartment, front, right of center, mounted to camshaft cover on right side	*Top of Engine Components (LCV)*	*Q6F Camshaft Position Actuator Solenoid Valve - Intake (LCV)*
Q8	Control Solenoid Valve Assembly	MYB	Underneath the vehicle, inside the automatic transmission assembly	—	• *Q8 Control Solenoid Valve Assembly X1 (MYB)* • *Q8 Control Solenoid Valve Assembly X2 (MYB)* • *Q8 Control Solenoid Valve Assembly X3 (MYB)*
Q12	Evaporative Emission Purge Solenoid Valve	LCV	In the engine compartment, right of center, near front, mounted to top of intake manifold	*Right Rear of Engine Components (LCV)*	*Q12 Evaporative Emission Purge Solenoid Valve (LCV)*
Q12	Evaporative Emission Purge Solenoid Valve	LFX	In the engine compartment, right of center, near middle, mounted to right side of intake manifold	*Right Rear of Engine Components (LFX)*	*Q12 Evaporative Emission Purge Solenoid Valve (LFX)*
Q13	Evaporative Emission Vent Solenoid Valve	—	On the underbody, at the top left side of the fuel tank	*Chassis Components (Crew Cab)*	*Q13 Evaporative Emission Vent Solenoid Valve*
Q17A	Fuel Injector 1	LCV	In the engine compartment, right of center, near front, mounted to the cylinder head at cylinder 1	—	*Q17A Fuel Injector 1 (LCV)*
Q17A	Fuel Injector 1	LFX	In the engine compartment, near middle front, on the inboard side of bank 1 cylinder head, above cylinder 1	—	*Q17A Fuel Injector 1 (LFX)*
Q17B	Fuel Injector 2	LCV	In the engine compartment, right of center, near middle, mounted to the cylinder head at cylinder 2	—	*Q17B Fuel Injector 2 (LCV)*
Q17B	Fuel Injector 2	LFX	In the engine compartment, near middle front, on the inboard side of bank 2 cylinder head, above cylinder 2	—	*Q17B Fuel Injector 2 (LFX)*

Q17C	Fuel Injector 3	LCV	In the engine compartment, right of center, near middle, mounted to the cylinder head at cylinder 3	—	*Q17C Fuel Injector 3 (LCV)*
Q17C	Fuel Injector 3	LFX	In the engine compartment, near middle, on the inboard side of bank 1 cylinder head, above cylinder 3	—	*Q17C Fuel Injector 3 (LFX)*
Q17D	Fuel Injector 4	LCV	In the engine compartment, right of center, near rear, mounted to the cylinder head at cylinder 4	—	*Q17D Fuel Injector 4 (LCV)*
Q17D	Fuel Injector 4	LFX	In the engine compartment, near middle, on the inboard side of bank 2 cylinder head, above cylinder 4	—	*Q17D Fuel Injector 4 (LFX)*
Q17E	Fuel Injector 5	LFX	In the engine compartment, near middle rear, on the inboard side of bank 1 cylinder head, above cylinder 5	—	*Q17E Fuel Injector 5 (LFX)*
Q17F	Fuel Injector 6	LFX	In the engine compartment, near middle rear, on the inboard side of bank 2 cylinder head, above cylinder 6	—	*Q17F Fuel Injector 6 (LFX)*
Q27A	Pressure Control Solenoid Valve 1	MYB	Under the vehicle, inside the automatic transmission, part of the control solenoid valve assembly	—	—
Q27B	Pressure Control Solenoid Valve 2	MYB	Under the vehicle, inside the automatic transmission, part of the control solenoid valve assembly	—	—
Q27C	Pressure Control Solenoid Valve 3	MYB	Under the vehicle, inside the automatic transmission, part of the control solenoid valve assembly	—	—
Q27D	Pressure Control Solenoid Valve 4	MYB	Under the vehicle, inside the automatic transmission, part of the control solenoid valve assembly	—	—
Q27E	Pressure Control Solenoid Valve 5	MYB	Under the vehicle, inside the automatic transmission, part of the control solenoid valve assembly	—	—
Q32A	Shift Solenoid Valve 1	MYB	Under the vehicle, inside the automatic transmission, part of the control solenoid valve assembly	—	—
Q32B	Shift Solenoid Valve 2	MYB	Under the vehicle, inside the automatic transmission, part of the control solenoid valve assembly	—	—
Q38	Throttle Body	LCV	In the engine compartment, right of center, near front, mounted to front of intake manifold	*Top of Engine Components (LCV)*	*Q38 Throttle Body*
Q38	Throttle Body	LFX	In the engine compartment, center, near front, mounted to front of intake manifold	*Left Front of the Engine Components (LFX)*	*Q38 Throttle Body*
Q39A	Torque Converter Clutch Pressure Control Solenoid Valve	MYB	Under the vehicle, inside the automatic transmission, part of the control solenoid valve assembly	—	—
Q44	Engine Oil Pressure Control Solenoid Valve	LCV	In the engine compartment, left of center rear, mounted to engine block at lower left	*Right Rear of Engine Components (LCV)*	*Q44 Engine Oil Pressure Control Solenoid Valve (LCV)*

Q46	A/C Compressor Solenoid Valve	—	In the engine compartment, front, left of center, mounted to A/C compressor, at rear	—	—
R6A	Terminating Resistor – High Speed Bus	LFX	Under the vehicle, taped in the harness near the chassis control module	• *Chassis Components (Crew Cab)* • *Underbody Components (3 of 3)* • *Chassis Underbody Components (Extended Cab)*	*R6A Terminating Resistor - High Speed Bus (LFX)*
S2A	Transmission Manual Shift Switch – Up/Down	MYB	In the passenger compartment, part of the transmission shift lever	—	—
S3	Transmission Shift Lever	MYB	In the passenger compartment, center near front, within the floor console	*Center Console Components (MYB)*	*S3 Transmission Shift Lever (MYB)*
S13D	Door Lock Switch – Driver	ATG	On driver door, upper middle, forward of release handle	*Driver Door Components*	*S13D Door Lock Switch - Driver*
S13P	Door Lock Switch – Passenger	ATG	On passenger door, upper middle, forward of release handle	*Passenger Door Components*	*S13P Door Lock Switch - Passenger*
S30	Headlamp Switch	—	In the passenger compartment, left of the steering column	*Front of the Instrument Panel Components*	*S30 Headlamp Switch*
S32D	Seat Heating Switch – Driver	KA1	In the passenger compartment, at the lower center of the instrument panel, below the HVAC controls	*Front of the Instrument Panel Components*	*S32D Seat Heating Switch - Driver (KA1)*
S32P	Seat Heating Switch – Passenger	KA1	In the passenger compartment, at the lower center of the instrument panel, below the HVAC controls	*Front of the Instrument Panel Components*	*S32P Seat Heating Switch - Passenger (KA1)*
S33	Horn Switch	—	In the passenger compartment, in the center of the steering wheel, behind the driver side air bag	—	—
S39	Ignition Switch	—	In the passenger compartment, behind the steering wheel, on the right side of the steering column	*Front of the Instrument Panel Components*	*S39 Ignition Switch*
S48A	Multifunction Switch – Instrument Panel	—	In the passenger compartment, near the center of the instrument panel	*Front of the Instrument Panel Components*	*S48A Multifunction Switch – Instrument Panel*
S51	Telematics Button Assembly	—	In the passenger compartment, part of the inside rearview mirror	—	—
S52	Outside Rearview Mirror Switch	—	In the passenger compartment, on the driver door trim panel	*Driver Door Components*	*S52 Outside Rearview Mirror Switch (DL6/DL9)*
S64D	Seat Adjuster Switch – Driver	AL9	In the passenger compartment, mounted to the outboard side of the driver seat cushion	*Driver Seat Components*	• *S64D Seat Adjuster Switch – Driver X1 (AL9)* • *S64D Seat Adjuster Switch – Driver X2 (AL9)*
S64P	Seat Adjuster Switch – Passenger	AAQ	In the passenger compartment, mounted to the outboard side of the passenger seat cushion	*Passenger Seat Components*	• *S64P Seat Adjuster Switch - Passenger X1 (AAQ)* • *S64P Seat Adjuster Switch - Passenger X2 (AAQ)*
S70E	Steering Wheel Controls Switch – Radio Presets	W1Y	In the passenger compartment, on the left rear side of the steering wheel	*Steering Column Components*	*S70E Steering Wheel Controls Switch - Radio Presets (W1Y)*

S70F	Steering Wheel Controls Switch – Radio Volume	W1Y	In the passenger compartment, on the right rear side of the steering wheel	*Steering Column Components*	*S70F Steering Wheel Controls Switch - Radio Volume (W1Y)*
S70L	Steering Wheel Controls Switch – Left	—	In the passenger compartment, on the left side of the steering wheel	*Steering Column Components*	*S70L Steering Wheel Controls Switch - Left*
S70R	Steering Wheel Controls Switch – Right	—	In the passenger compartment, on the right side of the steering wheel	*Steering Column Components*	*S70R Steering Wheel Controls Switch - Right*
S77	Transfer Case Shift Control Switch	NQ6/NQ7	In the passenger compartment, left of the steering column	*Front of the Instrument Panel Components*	*S77 Transfer Case Shift Control Switch (NQ6/NQ7)*
S78	Turn Signal/Multifunction Switch	—	In the passenger compartment, on the left side of the steering column	*Front of the Instrument Panel Components*	*S78 Turn Signal/Multifunction Switch*
S79D	Window Switch – Driver	AXG	In the passenger compartment, on the driver door trim panel, center of the door	*Driver Door Components*	*S79D Window Switch - Driver (AXG)*
S79LR	Window Switch – Left Rear	AXG	In the passenger compartment, at the center of the left rear door, on the door trim panel	*Left Rear Door Components (Crew Cab)*	*S79LR Window Switch - Left Rear (Crew Cab with AXG)*
S79P	Window Switch – Passenger	AXG	In the passenger compartment, on the passenger door trim panel, center of the door	*Passenger Door Components*	*S79P Window Switch - Passenger (AXG)*
S79RR	Window Switch – Right Rear	AXG	In the passenger compartment, at the center of the right rear door, on the door trim panel	*Right Rear Door Components (Crew Cab)*	*S79RR Window Switch - Right Rear (Crew Cab with AXG)*
S82	Windshield Wiper/Washer Switch	—	In the passenger compartment, on the right side of the steering column	*Front of the Instrument Panel Components*	*S82 Windshield Wiper/Washer Switch*
T3	Audio Amplifier	UQA	In the rear passenger compartment, mounted behind the glove box	*Behind the Instrument Panel Components*	• *T3 Audio Amplifier X1 (UQA)* • *T3 Audio Amplifier X2 (UQA)* • *T3 Audio Amplifier X3 (UQA)* • *T3 Audio Amplifier X4 (UQA)*
T4G	Cellular Phone, Navigation, and Digital Radio Antenna	IO4/IO5/IO6	Outside the vehicle, at the rear of the roof	*Rear of Vehicle Components*	*T4G Cellular Phone, Navigation, and Digital Radio Antenna (UE1)*
T4H	Digital Radio Antenna	U2M	Outside the vehicle, at the rear of the roof	—	*T4H Digital Radio Antenna (U2M)*
T4M	Radio Antenna	—	Outside the vehicle, at the rear of the roof	—	*T4M Radio Antenna (Without U2M)*
T4S	Wireless Communication Antenna – Bluetooth	UE1	In the passenger compartment, right side of the instrument panel, behind the glove box, attached to the telematics communication interface control module	—	—
T8A	Ignition Coil 1	LCV	In the engine compartment, center near front, mounted to cylinder head, above cylinder 1	*Top of Engine Components (LCV)*	*T8A Ignition Coil 1 (LCV)*
T8A	Ignition Coil 1	LFX	In the engine compartment, right of center, near middle, above cylinder 1	*Top of Engine Components (LFX)*	*T8A Ignition Coil 1 (LFX)*
T8B	Ignition Coil 2	LCV	In the engine compartment, center near middle, mounted to cylinder head, above cylinder 2	*Top of Engine Components (LCV)*	*T8B Ignition Coil 2 (LCV)*
T8B	Ignition Coil 2	LFX	In the engine compartment, left of center, near middle, above cylinder 2	*Top of Engine Components (LFX)*	*T8B Ignition Coil 2 (LFX)*
T8C	Ignition Coil 3	LCV	In the engine compartment, center near middle, mounted to cylinder head, above cylinder 3	*Top of Engine Components (LCV)*	*T8C Ignition Coil 3 (LCV)*

T8C	Ignition Coil 3	LFX	In the engine compartment, right of center, near middle, above cylinder 3	*Top of Engine Components (LFX)*	*T8C Ignition Coil 3 (LFX)*
T8D	Ignition Coil 4	LCV	In the engine compartment, center near rear, mounted to cylinder head, above cylinder 4	*Top of Engine Components (LCV)*	*T8D Ignition Coil 4 (LCV)*
T8D	Ignition Coil 4	LFX	In the engine compartment, left of center, near middle, above cylinder 4	*Top of Engine Components (LFX)*	*T8D Ignition Coil 4 (LFX)*
T8E	Ignition Coil 5	LFX	In the engine compartment, right of center, near rear, above cylinder 5	*Top of Engine Components (LFX)*	*T8E Ignition Coil 5 (LFX)*
T8F	Ignition Coil 6	LFX	In the engine compartment, left of center, near rear, above cylinder 6	*Top of Engine Components (LFX)*	*T8F Ignition Coil 6 (LFX)*
T12	Automatic Transmission Assembly	MYB	Underneath the vehicle	—	—
T15	Navigation Antenna Signal Splitter	IO6	In the passenger compartment, to the right of the glove box	• *Right Passenger Components (Extended Cab)* • *Right Passenger Components (Crew Cab)*	• *T15 Navigation Antenna Signal Splitter X1 (IO6)* • *T15 Navigation Antenna Signal Splitter X2 (IO6)* • *T15 Navigation Antenna Signal Splitter X3 (IO6)*
W8	Blunt Cut – Trailer Provision	—	Outside of the vehicle, at the rear, inboard of the left frame rail	—	—
X50A	Fuse Block – Underhood	—	In the engine compartment, top left near the inner fender	*Left Side of Engine Compartment Components (1 of 2)*	Electrical Center Identification Views
X50D	Fuse Block – Battery	—	In the engine compartment, top right near the inner fender	*Left Side of Engine Compartment Components (1 of 2)*	Electrical Center Identification Views
X51A	Fuse Block – Instrument Panel	—	In the passenger compartment, right side of the instrument panel, behind side trim panel	• *Right Passenger Components (Extended Cab)* • *Right Passenger Components (Crew Cab)*	Electrical Center Identification Views
X80A	Accessory Power Receptacle – Center Console 1	—	In the passenger compartment, at the forward left of the center console	• *Center Console Components (N8D)* • *Front of the Instrument Panel Components*	*X80A Accessory Power Receptacle - Center Console 1*
X80B	Accessory Power Receptacle – Center Console 2	—	In the passenger compartment, at the rear of the center console	• *Center Console Components (MYB)* • *Center Console Components (N8D)*	*X80B Accessory Power Receptacle - Center Console 2*
X83	Auxiliary Audio Input	IO3	In the passenger compartment, in the center console	*Front of the Instrument Panel Components*	• *X83 Auxiliary Audio Input X1* • *X83 Auxiliary Audio Input X2*
X83	Auxiliary Audio Input	IO4/IO5/IO6	In the passenger compartment, in center of instrument Panel, forward of the center floor console	*Front of the Instrument Panel Components*	*X83 Auxiliary Audio Input X1*

X83R	Auxiliary Audio Input – Rear	IO4/IO5/IO6	In the passenger compartment, at the rear of the center console	*Center Console Components (MYB)*	- *X83R Auxiliary Audio Input - Rear X1 (IO4/IO5/IO6 with MYB)* - *X83R Auxiliary Audio Input - Rear X2 (IO4/IO5/IO6 with MYB)* - *X83R Auxiliary Audio Input - Rear X3 (IO4/IO5/IO6 with MYB)*
X84	Data Link Connector	—	In the passenger compartment, at the bottom of the driver side of the instrument panel	—	*X84 Data Link Connector*
X85	Steering Wheel Air Bag Coil	—	In the passenger compartment, behind the steering wheel	—	- *X85 Steering Wheel Air Bag Coil X1* - *X85 Steering Wheel Air Bag Coil X2* - *X85 Steering Wheel Air Bag Coil X3*
X88	Trailer Connector	Z82	On the vehicle exterior, at the rear of the vehicle, left of the license plate	*Underbody Components (3 of 3)*	*X88 Trailer Connector (Z82)*
X92	USB Receptacle	IO4/IO5/IO6	In the passenger compartment, right front of the center console storage bin	- *Center Console Components (N8D)* - *Center Console Components (MYB)*	*X92 USB Receptacle*
X100	Power Steering Jumper Harness to Battery Harness (2 cavities)	—	Outside of the vehicle, left front of the front frame crossmember	—	*X100 Electric Power Steering Harness to Battery Negative Harness*
X101	Engine Harness to Body Harness (48 cavities)	—	In the engine compartment, left front of engine, near underhood fuse block	- *Body Harness Routing - Left Engine Compartment* - *Engine Harness Routing - Left Front (LCV)*	*X101 Engine Harness to Body Harness*
X102	Forward Lamp Harness to Body Harness (48 cavities)	—	In the engine compartment, left front, near left headlamp assembly	- *Forward Lamp Harness Routing - Left Engine Compartment* - *Body Harness Routing - Left Engine Compartment*	*X102 Forward Lamp Harness to Body Harness*
X103	Chassis Harness to Power Steering Jumper Harness (16 cavities)	—	Outside of the vehicle, left front of the front frame crossmember	- *Chassis Harness Routing (Crew Cab)* - *Chassis Harness Routing (Extended Cab)*	*X103 Chassis Harness to Electric Power Steering Harness*
X104	Forward Lamp Harness to Forward Lamp Jumper Harness (2 cavities)	—	In the engine compartment, left front, near left radiator support	*Forward Lamp Harness Routing - Left Engine Compartment*	*X104 Forward Lamp Harness to Forward Lamp Extension Harness (LCV)*
X105	Forward Lamp Harness to Ambient Temperature Sensor Jumper Harness (6 cavities)	—	Outside of the vehicle, forward of left radiator support on front impact bar	*Forward Lamp Harness Routing - Left Engine Compartment*	- *X105 Forward Lamp Harness to Jumper Harness (LCV)* - *X105 Forward Lamp Harness to Jumper Harness (LFX)*
X106	Chassis Harness to Body Harness (48 cavities)	—	In the engine compartment, left of engine, near battery	*Body Harness Routing - Left Engine Compartment*	*X106 Body Harness to Chassis Harness*
X110	Forward Lamp Harness to Left Headlamp Harness (6 cavities)	—	In the engine compartment, at the rear of the left headlamp assembly	*Forward Lamp Harness Routing - Left Engine Compartment*	*X110 Forward Lamp Harness to Left Front Lamp Harness*
X120	Forward Lamp Harness to Right Headlamp Harness (6 cavities)	—	In the engine compartment, at the rear of the right headlamp assembly	*Forward Lamp Harness Routing - Right Engine Compartment*	*X120 Forward Lamp Harness to Right Front Lamp Harness*

X160	Engine Harness to Fuel Injector Harness (12 cavities)	LCV	In the engine compartment, right of center, forward of middle, mounted to intake manifold	*Engine Harness Routing - Right Front Top (LCV)*	*X160 Engine Harness to Fuel Injector Rail Harness (LCV)*
X160	Engine Harness to Fuel Injector Harness (6 cavities)	LFX	In the engine compartment, rear, right of center, behind bank 1 camshaft cover	*Engine Harness Routing - Rear (LFX)*	*X160 Engine Harness to Fuel Injector Rail Harness (LFX)*
X161	Engine Harness to Even Fuel Injector Harness (12 cavities)	LFX	In the engine compartment, rear, right of center, behind bank 1 camshaft cover	*Engine Harness Routing - Rear (LFX)*	*X161 Engine Harness to Fuel Injector Rail Harness (LFX)*
X200	Body Harness to Instrument Panel Harness (48 cavities)	—	In the passenger compartment, left side of the instrument panel, behind side trim panel near floor	• *Instrument Panel Harness Routing - Rear* • *Body Harness Routing - Left Front of Passenger Compartment (Crew Cab)* • *Body Harness Routing - Left Front of Passenger Compartment (Extended Cab)*	*X200 Body Harness to Instrument Panel Harness*
X202	Body Harness to Instrument Panel Harness (44 cavities)	—	In the passenger compartment, left side of the instrument panel, behind side trim panel near floor	• *Body Harness Routing - Left Front of Passenger Compartment (Extended Cab)* • *Body Harness Routing - Left Front of Passenger Compartment (Crew Cab)* • *Instrument Panel Harness Routing - Rear*	*X202 Body Harness to Instrument Panel Harness*
X203	Instrument Panel Harness to Body Harness (48 cavities)	—	In the passenger compartment, right side of the instrument panel, below instrument panel fuse block, behind side trim panel	• *Instrument Panel Harness Routing - Rear* • *Body Harness Routing - Right Front of Passenger Compartment (Extended Cab)* • *Body Harness Routing - Right Front of Passenger Compartment (Crew Cab)*	*X203 Body Harness to Instrument Panel Harness*
X204	Instrument Panel Harness to Floor Console Harness (14 cavities)	—	In the passenger compartment, left of center, beneath the instrument panel	• *Instrument Panel Harness Routing - Rear* • *Center Console Harness Routing*	*X305 Instrument Panel Harness to Floor Console Harness*
X205	Instrument Panel Harness to Floor Console Harness (8 cavities)	MYB	In the passenger compartment, right of center, beneath the instrument panel	*Center Console Harness Routing*	*X306 Instrument Panel Harness to Floor Console Harness (MYB)*
X206	HVAC Harness to Instrument Panel Harness (2 cavities)	C68	In the passenger compartment, left of center, near left side of HVAC Assembly	*Instrument Panel Harness Routing - Rear*	*X206 Instrument Panel Harness to HVAC Harness (C68)*
X218	Body Harness to Instrument Panel Harness (COAX)	U2M	In the passenger compartment, right side of the instrument panel, below instrument panel fuse block, behind side trim panel	• *Body Harness Routing - Right Front of Passenger Compartment (Extended Cab)* • *Body Harness Routing - Right Front of Passenger Compartment (Crew Cab)* • *Instrument Panel Harness Routing - Rear*	*X218 Instrument Panel COAX Harness to Body COAX Harness*

X219	Body Harness to Instrument Panel Harness (COAX)	Except U2M	In the passenger compartment, right side of the instrument panel, below instrument panel fuse block, behind side trim panel	• *Body Harness Routing - Right Front of Passenger Compartment (Crew Cab)* • *Instrument Panel Harness Routing - Rear* • *Body Harness Routing - Right Front of Passenger Compartment (Extended Cab)*	*X219 Instrument Panel Harness to Body Harness*
X220	Body Harness to Instrument Panel Harness (COAX)	IO6	In the passenger compartment, right side of the instrument panel, below instrument panel fuse block, behind side trim panel	• *Instrument Panel Harness Routing - Rear* • *Body Harness Routing - Right Front of Passenger Compartment (Crew Cab)* • *Body Harness Routing - Right Front of Passenger Compartment (Extended Cab)*	*X220 Instrument Panel Harness to Body Harness*
X300	Headliner Harness to Body Harness (16 cavities)	—	In the passenger compartment , top right instrument panel, near A—pillar	• *Body Harness Routing - Right Front of Passenger Compartment (Extended Cab)* • *Body Harness Routing - Right Front of Passenger Compartment (Crew Cab)* • *Headliner Harness Routing (Crew Cab)* • *Headliner Harness Routing (Extended Cab)*	*X300 Headliner Harness to Body Harness*
X301	Headliner Harness to Body Harness (22 cavities)	—	In the passenger compartment , rear of cab roof, near center high mounted stop lamp	• *Body Harness Routing - Left Rear of Passenger Compartment (Extended Cab)* • *Body Harness Routing - Left Rear of Passenger Compartment (Crew Cab)* • *Headliner Harness Routing (Crew Cab)* • *Headliner Harness Routing (Extended Cab)*	*X301 Headliner Harness to Body Harness*
X302	Floor Console Harness to Instrument Panel Harness (6 cavities)	—	In the passenger compartment, right of center, beneath the instrument panel	*Center Console Harness Routing*	*X302 Floor Console Harness to Instrument Panel Harness*
X310	Driver Seat Cushion Harness to Body Harness (23 cavities)	—	In the passenger compartment, under the driver seat	• *Body Harness Routing - Left Front of Passenger Compartment (Extended Cab)* • *Body Harness Routing - Left Front of Passenger Compartment (Crew Cab)*	*X310 Driver Seat Harness to Body Harness*
X311	Driver Seat Back Harness to Driver Seat Cushion Harness (16 cavities)	—	In the passenger compartment, under the driver seat	—	—
X320	Passenger Seat Cushion Harness to Body Harness (23 cavities)	—	In the passenger compartment, under the passenger seat	• *Body Harness Routing - Right Front of Passenger Compartment (Extended Cab)* • *Body Harness Routing - Right Front of Passenger Compartment (Crew Cab)*	*X320 Passenger Seat Harness to Body Harness*

X321	Passenger Seat Back Harness to Passenger Seat Cushion Harness (16 cavities)	—	In the passenger compartment, under the passenger seat	—	—
X322	Passenger Seat Cushion Harness to Passenger Seat Belt Tension Sensor Jumper Harness (3 cavities)	—	In the passenger compartment, under the passenger seat	—	—
X399	Instrument Panel Harness to Instrument Panel Harness (2 cavities)	—	In the passenger compartment, below the lower left side of the instrument panel, near the data link connector	*Instrument Panel Harness Routing - Rear*	*X399 Instrument Panel Harness to Instrument Panel Harness*
X400	Chassis Harness to License Lamp Harness (10 cavities)	—	Outside of vehicle, inboard of the left frame rail, rearward of the left rear leaf spring mount	• *Chassis Harness Routing (Crew Cab)* • *Rear License Plate Harness Routing*	*X400 Chassis Harness to License Lamp Harness*
X410	Left Tail Lamp Harness to Chassis Harness (6 cavities)	—	At left rear of vehicle, between tail lamp assembly – left and body	• *Chassis Harness Routing (Extended Cab)* • *Chassis Harness Routing (Crew Cab)*	*X410 Left Rear Lamp Harness to Chassis Harness*
X420	Right Tail Lamp Harness to Chassis Harness (6 cavities)	—	At right rear of vehicle, between tail lamp assembly – right and body	• *Chassis Harness Routing (Extended Cab)* • *Chassis Harness Routing (Crew Cab)*	*X420 Right Rear Lamp Harness to Chassis Harness*
X500	Body Harness to Driver Door Harness (34 cavities)	—	In the passenger compartment, left front, in the left a—pillar, between hinges	*Driver Door Harness Routing*	*X500 Body Harness to Driver Door Harness*
X510	Driver Outside Rearview Mirror Harness to Driver Door Harness (10 cavities)	—	At side of vehicle, front of driver door, between outside rearview mirror – driver and door frame	*Driver Door Harness Routing*	*X510 Driver Outside Rearview Mirror Harness to Driver Door Harness*
X600	Body Harness to Passenger Door Harness (34 cavities)	—	In the passenger compartment, right front, in the right a—pillar, between hinges	*Passenger Door Harness Routing*	*X600 Body Harness to Passenger Door Harness*
X610	Passenger Outside Rearview Mirror Harness to Passenger Door Harness (10 cavities)	—	At side of vehicle, front of passenger door, between outside rearview mirror – passenger and door frame	*Passenger Door Harness Routing*	*X610 Passenger Outside Rearview Mirror Harness to Passenger Door Harness*
X700	Left Rear Door Harness to Body Harness (12 cavities)	43	In the passenger compartment, behind the left B—pillar, near the middle	• *Left Rear Door Harness Routing (Crew Cab)* • *Body Harness Routing - Left Rear of Passenger Compartment (Crew Cab)*	*X700 Left Rear Door Harness to Body Harness (Crew Cab)*
X700	Left Rear Door Harness to Body Harness (20 cavities)	53	In the passenger compartment, behind the left B—pillar, near the middle	• *Left Rear Door Harness Routing (Exended Cab)* • *Body Harness Routing - Left Rear of Passenger Compartment (Extended Cab)*	*X700 Left Rear Door Harness to Body Harness (Extended Cab)*
X800	Right Rear Door Harness to Body Harness (12 cavities)	43	In the passenger compartment, behind the right B—pillar, near the middle	• *Right Rear Door Harness Routing (Crew Cab)* • *Body Harness Routing - Right Front of Passenger Compartment (Crew Cab)*	*X800 Right Rear Door Harness to Body Harness (Crew Cab)*

X800	Right Rear Door Harness to Body Harness (20 cavities)	53	In the passenger compartment, behind the right B—pillar, near the middle	• *Body Harness Routing - Right Rear of Passenger Compartment (Extended Cab)* • *Right Rear Door Harness Routing (Extended Cab)*	*X800 Right Rear Door Harness to Body Harness (Extended Cab)*
G100	Battery Negative Harness	—	In the engine compartment, left of center, on left wheel liner, rearward of the left front tire	—	—
G101	Battery Negative Harness	—	In the engine compartment, left of center, beneath engine on frame cross member	—	—
G102	Battery Negative Harness	—	In the engine compartment, on the left front of the engine	—	—
G103	Forward Lamp Harness	—	In the engine compartment, beneath the left headlamp assembly, mounted to the radiator support	*G103*	—
G105	Forward Lamp Harness	—	In the engine compartment, beneath the right headlamp assembly, mounted to the radiator support	*G105*	—
G107	Engine Harness	LCV	In the engine compartment, on the right middle of the engine block, below cylinder four	*G107 (LCV)*	—
G107	Engine Harness	LFX	In the engine compartment, on the right of the engine block, rearward of the generator	*G107 and G108 (LFX)*	—
G108	Engine Harness	LCV	In the engine compartment, on the rear of the cylinder head	*G108 (LCV)*	—
G108	Engine Harness	LFX	In the engine compartment, on the right front of the engine block, below cylinder two	*G107 and G108 (LFX)*	—
G109	Engine Harness	LFX	In the engine compartment, on the left middle of the engine block, beneath cylinder one	*G109 (LFX)*	—
G201	Instrument Panel Harness	—	In the passenger compartment, center, beneath the floor console	*G300, G305, and G307*	—
G300	Instrument Panel Harness	—	In the passenger compartment, center, beneath the floor console	*G300, G305, and G307*	—
G301	Body harness	—	In the passenger compartment, left middle, on floor below driver seat, forward of X310	*G301 and G303*	—
G302	Body Harness	—	In the passenger compartment, right middle, on floor below passenger seat, forward of X320	*G302 and G304 (Crew Cab)*	—
G303	Body Harness	—	In the passenger compartment, left middle, on floor below driver seat, forward of X310	*G301 and G303*	—
G304	Body Harness	—	In the passenger compartment, right middle, on floor below passenger seat, forward of X320	*G302 and G304 (Crew Cab)*	—
G305	Instrument Panel Harness	—	In the passenger compartment, center, beneath the floor console	*G300, G305, and G307*	—
G306	Body Harness	53	In the passenger compartment, left rear, on upper left B—Pillar	*G306 (Crew Cab)*	—

G400	Chassis Harness	—	Under vehicle, outboard of left frame rail, rearward of the fuel filler neck	• *G400 (Crew Cab)* • *G400 (Extended Cab)*	—
G401	Body Harness	—	Under vehicle, outboard of left frame rail, forward of the left leaf spring mount	• *G401 (Crew Cab)* • *G401 (Extended Cab)*	—
G402	Body Harness	—	Under vehicle, outboard of right frame rail, forward of the right leaf spring mount	• *G402 (Crew Cab)* • *G402 (Extended Cab)*	—
J100	Body Harness	NQ6	In engine compartment, approximately 10.7 cm (4.21 in) from battery current sensor breakout towards rear of vehicle	*Body Harness Routing - Left Engine Compartment*	—
J101	Body Harness	NQ6/NQ7	In engine compartment, approximately 15.7 cm (6.18 in) from battery current sensor breakout towards rear of vehicle	*Body Harness Routing - Left Engine Compartment*	—
J102	Body Harness	—	In engine compartment, approximately 4.0 cm (1.57 in) into X106 breakout	*Body Harness Routing - Left Engine Compartment*	—
J103	Body Harness	—	In engine compartment, approximately 12.5 cm (4.92 in) from battery ground breakout towards body grommet	• *Body Harness Routing - Left Front of Passenger Compartment (Crew Cab)* • *Body Harness Routing - Left Engine Compartment*	—
J104	Chassis Harness	—	Underneath the rear of vehicle, approximately 30.7 cm (12.1 in) from X106 breakout towards front of vehicle	• *Chassis Harness Routing (Extended Cab)* • *Chassis Harness Routing (Crew Cab)*	—
J105	Chassis Harness	—	Underneath the rear of vehicle, approximately 5.4 cm (2.13 in) into X106 breakout	• *Chassis Harness Routing (Crew Cab)* • *Chassis Harness Routing (Extended Cab)*	—
J106	Engine Harness	LCV with NQ6/NQ7	In engine compartment, left front of engine, approximately 3 cm (1.81 in) from X101 breakout towards engine	*Engine Harness Routing - Left Front (LCV)*	—
J106	Engine Harness	LFX with NQ6/NQ7	In engine compartment, left front of engine, approximately 6.6 cm (2.60 in) into X101 breakout	—	—
J107	Engine Harness	LCV	In engine compartment, front of engine, approximately 5 cm (1.97 in) from camshaft position actuator solenoid valve — exhaust breakout towards manifold absolute pressure sensor breakout	*Engine Harness Routing - Left Front (LCV)*	—
J107	Engine Harness	LFX	In engine compartment, left front of engine, approximately 12.9 cm (5.08 in) into fuse block underhood X3 breakout	—	—
J108	Engine Harness	LCV	In engine compartment, left front of engine, approximately 11.1 cm (4.37 in) from camshaft position actuator solenoid valve — exhaust breakout towards X101 breakout	*Engine Harness Routing - Left Front (LCV)*	—

J109	Engine Harness	LCV with MYB	In engine compartment, front of engine, approximately 10.9 cm (4.29 in) from camshaft position actuator solenoid valve — exhaust breakout towards manifold absolute pressure sensor breakout	*Engine Harness Routing - Left Front (LCV)*	—
J109	Engine Harness	LFX with MYB	In engine compartment, left front of engine, approximately 6.1 cm (2.40 in) from ignition coil 2 breakout towards rear of engine	—	—
J110	Engine Harness	LCV	In engine compartment, front of engine, approximately 2.5 cm (0.98 in) from camshaft position actuator solenoid valve — exhaust breakout towards manifold absolute pressure sensor breakout	*Engine Harness Routing - Left Front (LCV)*	—
J110	Engine Harness	LFX	In engine compartment, right front of engine, approximately 14 cm (5.51 in) from evaporative emission purge solenoid valve breakout towards throttle body	—	—
J111	Engine Harness	LCV	In engine compartment, front of engine, approximately 13.4 cm (5.28 in) from camshaft position actuator solenoid valve — exhaust breakout towards manifold absolute pressure sensor breakout	*Engine Harness Routing - Left Front (LCV)*	—
J111	Engine Harness	LFX	In engine compartment, left front of engine, approximately 2 cm (6.10 in) from ignition coil 2 breakout towards ignition coil 4 breakout	—	—
J112	Engine Harness	LCV	In engine compartment, right front of engine, approximately 5 cm (1.97 in) from ignition coil 1 breakout towards ignition coil 2 breakout	*Engine Harness Routing - Right Front Top (LCV)*	—
J113	Engine Harness	LCV	In engine compartment, right front of engine, approximately 2.5 cm (0.98 in) from ignition coil 1 breakout towards ignition coil 2 breakout	*Engine Harness Routing - Right Front Top (LCV)*	—
J113	Engine Harness	LFX	In engine compartment, left front of engine, approximately 15.5 cm (6.10 in) into fuse block underhood X3 breakout	—	—
J114	Engine Harness	LCV	In engine compartment, right front of engine, approximately 2.5 cm (0.98 in) from ignition coil 1 breakout towards camshaft position actuator solenoid valve — intake breakout	*Engine Harness Routing - Right Front Top (LCV)*	—
J114	Engine Harness	LFX	In engine compartment, right front of engine, approximately 6.1 cm (2.40 in) from evaporative emission purge solenoid valve breakout towards throttle body	—	—
J115	Engine Harness	LFX	In engine compartment, left front of engine, approximately 15.5 cm (6.10 in) from X101 breakout towards right side of engine, near oil fill cap	—	—
J116	Engine Harness	LFX	In engine compartment, left front of engine, approximately 2 cm (.79 in) from ignition coil 2 breakout towards rear of engine	—	—
J117	Forward Lamp Harness	—	In engine compartment, approximately 7.8 cm (3.07 in) into underhood fuse block X1 breakout	*Forward Lamp Harness Routing - Left Engine Compartment*	—

J118	Forward Lamp Harness	—	In engine compartment, approximately 29.6 cm (11.7 in) into underhood fuse block X1 breakout	*Forward Lamp Harness Routing - Left Engine Compartment*	—
J119	Forward Lamp Harness	—	In engine compartment, approximately 15.6 cm (6.14 in) into underhood fuse block X1 breakout	*Forward Lamp Harness Routing - Left Engine Compartment*	—
J120	Forward Lamp Harness	—	In engine compartment, approximately 28.2 cm (11.7 in) from right fog lamp breakout towards cooling fan control module breakout	*Forward Lamp Harness Routing - Right Engine Compartment*	—
J121	Left Headlamp Harness	—	Outside of the vehicle, internal to the left headlamp assembly	—	—
J122	Right Headlamp Harness	—	Outside of the vehicle, internal to the right headlamp assembly	—	—
J123	Left Headlamp Harness	—	Outside of the vehicle, internal to the left headlamp assembly	—	—
J124	Right Headlamp Harness	—	Outside of the vehicle, internal to the right headlamp assembly	—	—
J200	Body Harness	—	In passenger compartment, approximately 12.5 cm (4.92 in) from accelerator pedal position sensor breakout towards brake pedal position sensor breakout	*Body Harness Routing - Left Front of Passenger Compartment (Extended Cab)*	—
J201	Body Harness	—	In passenger compartment, approximately 15.6 cm (6.14 in) from park brake switch breakout towards main harness	• *Body Harness Routing - Left Front of Passenger Compartment (Crew Cab)* • *Body Harness Routing - Left Front of Passenger Compartment (Extended Cab)*	—
J202	Body Harness	—	In passenger compartment, approximately 8.2 cm (3.23 in) from park brake switch breakout towards main harness	• *Body Harness Routing - Left Front of Passenger Compartment (Extended Cab)* • *Body Harness Routing - Left Front of Passenger Compartment (Crew Cab)*	—
J203	Body Harness	—	In passenger compartment, approximately 4.1 cm (1.61 in) from park brake switch breakout towards body control module breakouts	• *Body Harness Routing - Left Front of Passenger Compartment (Crew Cab)* • *Body Harness Routing - Left Front of Passenger Compartment (Extended Cab)*	—
J204	Body Harness	—	In passenger compartment, approximately 8.1 cm (3.19 in) from park brake switch breakout towards body control module breakouts	• *Body Harness Routing - Left Front of Passenger Compartment (Extended Cab)* • *Body Harness Routing - Left Front of Passenger Compartment (Crew Cab)*	—
J205	Body Harness	—	In passenger compartment, approximately 11.9 cm (4.69 in) from park brake switch breakout towards main harness	• *Body Harness Routing - Left Front of Passenger Compartment (Extended Cab)* • *Body Harness Routing - Left Front of Passenger Compartment (Crew Cab)*	—

J206	Body Harness	—	In passenger compartment, approximately 4.1 cm (1.61 in) from X500 breakout towards G301 breakout	• *Body Harness Routing - Left Front of Passenger Compartment (Extended Cab)* • *Body Harness Routing - Left Front of Passenger Compartment (Crew Cab)*	—
J207	Body Harness	—	In passenger compartment, approximately 4.6 cm (1.81 in) from X500 breakout towards JX201 breakout	*Body Harness Routing - Left Front of Passenger Compartment (Crew Cab)*	—
J208	Body Harness	—	In passenger compartment, approximately 9.6 cm (3.78 in) from X500 breakout towards JX201 breakout	• *Body Harness Routing - Left Front of Passenger Compartment (Crew Cab)* • *Body Harness Routing - Left Front of Passenger Compartment (Extended Cab)*	—
J209	Body Harness	43	In passenger compartment, approximately 5.0 cm (1.97 in) from G301 breakout towards front of vehicle	*Body Harness Routing - Left Front of Passenger Compartment (Crew Cab)*	—
J209	Body Harness	53	In passenger compartment, approximately 12.3 cm (4.84 in) from G301 breakout towards front of vehicle	*Body Harness Routing - Left Front of Passenger Compartment (Extended Cab)*	—
J210	Body Harness	43	In passenger compartment, approximately 1.23 cm (4.84 in) from G301 breakout towards front of vehicle	*Body Harness Routing - Left Front of Passenger Compartment (Crew Cab)*	—
J211	Body Harness	43	In passenger compartment, approximately 22 cm (8.66 in) from G301 breakout towards front of vehicle	*Body Harness Routing - Left Front of Passenger Compartment (Crew Cab)*	—
J212	Body Harness	43	In passenger compartment, approximately 30.2 cm (11.9 in) from G301 breakout towards front of vehicle	*Body Harness Routing - Left Front of Passenger Compartment (Crew Cab)*	—
J213	Body Harness	43 with AXG	In passenger compartment, under passenger door trim plate, approximately 12 cm (4.72 in) from antenna coaxial cable inline connector breakout towards rear of vehicle	*Body Harness Routing - Right Front of Passenger Compartment (Crew Cab)*	—
J214	Instrument Panel Harness	—	In passenger compartment, behind left side of instrument panel, approximately 8.8 cm (3.46 in) from data link connector breakout towards steering column	*Instrument Panel Harness Routing - Rear*	—
J215	Instrument Panel Harness	—	In passenger compartment, behind left side of instrument panel, approximately 2.5 cm (1.0 in) from data link connector breakout towards floor	*Instrument Panel Harness Routing - Rear*	—
J216	Instrument Panel Harness	—	In passenger compartment, behind left side of instrument panel, approximately 7.6 cm (2.99 in) from data link connector breakout towards floor	*Instrument Panel Harness Routing - Rear*	—
J217	Instrument Panel Harness	KA1	In passenger compartment, behind left side of instrument panel, near body control module, approximately 5.3 cm (2.09 in) into main harness bundle leading toward body control module X1 breakout	*Instrument Panel Harness Routing - Rear*	—

J218	Instrument Panel Harness	UQ3	In passenger compartment, behind left side of instrument panel, approximately 6.6 cm (2.60 in) from left front speaker breakout towards steering column	*Instrument Panel Harness Routing - Rear*	—
J219	Instrument Panel Harness	UQ3	In passenger compartment, behind left side of instrument panel, approximately 10 cm (3.94 in) from left front speaker breakout towards steering column	*Instrument Panel Harness Routing - Rear*	—
J220	Instrument Panel Harness	—	In passenger compartment, behind left side of instrument panel, approximately 3.2 cm (1.26 in) from left front speaker breakout towards steering column	*Instrument Panel Harness Routing - Rear*	—
J221	Instrument Panel Harness	—	In passenger compartment, behind left side of instrument panel, approximately 15.9 cm (6.26 in) into secondary bundle leading toward steering wheel air bag coil breakout	*Instrument Panel Harness Routing - Rear*	—
J222	Instrument Panel Harness	IO4/IO5/IO6	In passenger compartment, behind center of instrument panel, approximately 13 cm (5.12 in) from X204 breakout towards center console accessory power receptacle breakout	*Instrument Panel Harness Routing - Rear*	—
J223	Instrument Panel Harness	—	In passenger compartment, behind center of instrument panel, approximately 3.3 cm (1.30 in) from center console accessory power receptacle breakout towards X204 breakout	*Instrument Panel Harness Routing - Rear*	—
J224	Instrument Panel Harness	—	In passenger compartment, behind center of instrument panel, approximately 5.2 cm (2.05 in) from center console accessory power receptacle breakout towards G305 breakout under center floor console	*Instrument Panel Harness Routing - Rear*	—
J225	Instrument Panel Harness	—	In passenger compartment, behind center of instrument panel, approximately 29.6 cm (11.7 in) from center console accessory power receptacle breakout towards G305 breakout under center floor console	*Instrument Panel Harness Routing - Rear*	—
J226	Instrument Panel Harness	TG5/IO4/IO5/IO6	In passenger compartment, behind center of instrument panel, approximately 14.7 cm (5.79 in) from center console accessory power receptacle breakout towards G305 breakout under center floor console	*Instrument Panel Harness Routing - Rear*	—
J227	Instrument Panel Harness	—	In passenger compartment, behind center of instrument panel, approximately 24.4 cm (9.61 in) from center console accessory power receptacle breakout towards G305 breakout under center floor console	*Instrument Panel Harness Routing - Rear*	—
J228	Instrument Panel Harness	—	In passenger compartment, behind center of instrument panel, approximately 35.3 cm (13.9 in) from center console accessory power receptacle breakout towards G305 breakout under center floor console	*Instrument Panel Harness Routing - Rear*	—
J229	Instrument Panel Harness	UQ3	In passenger compartment, behind right side of instrument panel, approximately 4.5 cm (1.77 in) from passenger instrument panel air bag breakout towards radio X4 breakout	*Instrument Panel Harness Routing - Rear*	—

J230	Instrument Panel Harness	UQ3	In passenger compartment, behind right side of instrument panel, approximately 9 cm (3.54 in) from passenger instrument panel air bag breakout towards radio X4 breakout	*Instrument Panel Harness Routing - Rear*	—
J231	Instrument Panel Harness	—	In passenger compartment, behind right side of instrument panel, approximately 18 cm (3.54 in) from right front speaker breakout towards passenger instrument panel air bag breakout	*Instrument Panel Harness Routing - Rear*	—
J232	Steering Wheel Harness	—	In passenger compartment, in the steering wheel harness	—	—
J233	Steering Wheel Harness	—	In passenger compartment, in the steering wheel harness	—	—
J234	Steering Wheel Harness	—	In passenger compartment, in the steering wheel harness	—	—
J250	Steering Wheel Harness	—	In passenger compartment, in the steering wheel harness	—	—
J251	HVAC Harness	—	In passenger compartment, HVAC assembly harness	—	—
J252	HVAC Harness	—	In passenger compartment, HVAC assembly harness	—	—
J300	Body Harness	43 with AXG	In passenger compartment, under passenger door trim plate, approximately 22 cm (8.66 in) from G304 breakout towards front of vehicle	*Body Harness Routing - Right Front of Passenger Compartment (Crew Cab)*	—
J301	Body Harness	—	In passenger compartment, under passenger seat, approximately 4.0 cm (1.57 in) from X320 breakout towards floor console	• *Body Harness Routing - Right Front of Passenger Compartment (Extended Cab)* • *Body Harness Routing - Right Front of Passenger Compartment (Crew Cab)*	—
J302	Body Harness	53	In passenger compartment, under driver door trim plate, approximately 5 cm (1.97 in) from G303 breakout towards rear of vehicle	*Body Harness Routing - Left Front of Passenger Compartment (Extended Cab)*	—
J303	Body Harness	53	In passenger compartment, under passenger door trim plate, approximately 5 cm (1.97 in) from G304 breakout towards rear of vehicle	*Body Harness Routing - Right Front of Passenger Compartment (Extended Cab)*	—
J304	Floor Console Harness	IO3 with N8D	In passenger compartment, under center floor console, approximately 12.3 cm (4.84 in) from X302 USB inline connector breakout towards rear of vehicle	*Center Console Harness Routing*	—
J305	Floor Console Harness	—	In passenger compartment, under center floor console, approximately 11.7 cm (4.61 in) from USB receptacle breakout towards rear of vehicle	*Center Console Harness Routing*	—
J306	Headliner Harness	—	In passenger compartment, above the headliner, approximately 20.3 cm (4.72 in) from the left sunshade mirror lamp breakout towards rear of vehicle	• *Headliner Harness Routing (Crew Cab)* • *Headliner Harness Routing (Extended Cab)*	—

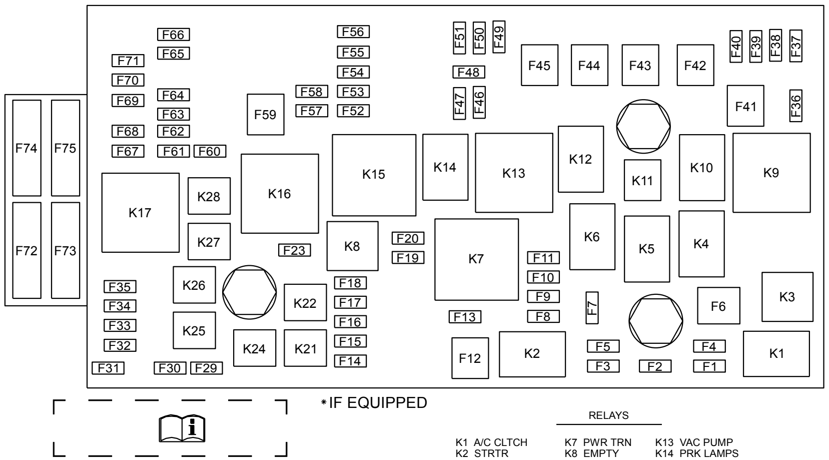
J307	Headliner Harness	—	In passenger compartment, above the headliner, approximately 11.7 cm (4.61 in) from the left sunshade mirror lamp breakout towards rear of vehicle	• *Headliner Harness Routing (Crew Cab)* • *Headliner Harness Routing (Extended Cab)*	—
J308	Headliner Harness	43	In passenger compartment, above the headliner, approximately 35.3 cm (13.9 in) from the left sunshade mirror lamp breakout towards rear of vehicle	*Headliner Harness Routing (Crew Cab)*	—
J308	Headliner Harness	53	In passenger compartment, above the headliner, approximately 13.8 cm (4.61 in) from the rear dome lamp breakout towards rear of vehicle	*Headliner Harness Routing (Extended Cab)*	—
J309	Driver Seat Cushion Harness	AL9	In passenger compartment, under driver seat	—	—
J310	Passenger Seat Cushion Harness	AT9	In passenger compartment, under passenger seat	—	—
J311	Driver Seat Cushion Harness	AH6/AL9/KA1	In passenger compartment, under driver seat	—	—
J312	Passenger Seat Cushion Harness	AAQ/AT9/KA1	In passenger compartment, under passenger seat	—	—
J313	Passenger Seat Cushion Harness	AL0	In passenger compartment, under passenger seat	—	—
J314	Driver Seat Cushion Harness	—	In passenger compartment, under driver seat	—	—
J315	Passenger Seat Cushion Harness	—	In passenger compartment, under passenger seat	—	—
J400	Chassis Harness	—	Underneath the rear of vehicle, approximately 5.3 cm (2.09 in) from G401 breakout towards rear of vehicle	• *Chassis Harness Routing (Crew Cab)* • *Chassis Harness Routing (Extended Cab)*	—
J401	Chassis Harness	—	Underneath the rear of vehicle, approximately 13.5 cm (5.31 in) from chassis control module (LFX) or fuel pump driver control module (LCV) breakout towards front of vehicle	• *Chassis Harness Routing (Crew Cab)* • *Chassis Harness Routing (Extended Cab)*	—
J402	Chassis Harness	—	Underneath the rear of vehicle, approximately 6.1 cm (2.40 in) from chassis control module (LFX) or fuel pump driver control module (LCV) breakout towards left frame rail	• *Chassis Harness Routing (Extended Cab)* • *Chassis Harness Routing (Crew Cab)*	—
J403	Chassis Harness	—	Underneath the rear of vehicle, approximately 18.5 cm (7.28 in) from left rear wheel speed sensor breakout towards front of vehicle	• *Chassis Harness Routing (Crew Cab)* • *Chassis Harness Routing (Extended Cab)*	—
J404	Chassis Harness	—	Underneath the rear of vehicle, approximately 6.2 cm (2.44 in) into G400 breakout	• *Chassis Harness Routing (Crew Cab)* • *Chassis Harness Routing (Extended Cab)*	—
J405	Chassis Harness	—	Underneath the rear of vehicle, approximately 20.1 cm (7.91 in) from G400 breakout towards front of vehicle	• *Chassis Harness Routing (Crew Cab)* • *Chassis Harness Routing (Extended Cab)*	—

J406	License Harness	—	At rear of vehicle, approximately 10 cm (3.94 in) from inline connector X400	*Rear License Plate Harness Routing*	—
J407	License Harness	—	At rear of vehicle, approximately 12.5 cm (4.92 in) from inline connector X400	*Rear License Plate Harness Routing*	—
J408	License Harness	—	At rear of vehicle, approximately 14.9 cm (5.87 in) from left license lamp breakout towards rear camera breakout	*Rear License Plate Harness Routing*	—
J409	License Harness	—	At rear of vehicle, approximately 4.8 cm (1.89 in) into rear camera breakout	*Rear License Plate Harness Routing*	—
J410	Right Rear Lamp Harness	—	Outside of the vehicle, internal to the right taillamp assembly	—	—
J411	Left Rear Lamp Harness	—	Outside of the vehicle, internal to the left taillamp assembly	—	—
J501	Driver Door Harness	—	In the driver door, approximately 7.9 cm (3.11 in) from window motor breakout towards front of vehicle	*Driver Door Harness Routing*	—
J502	Driver Door Harness	—	In the driver door, approximately 3.2 cm (1.26 in) from window motor breakout towards impact sensor breakout	*Driver Door Harness Routing*	—
J503	Driver Door Harness	—	In the driver door, approximately 21.3 cm (8.39 in) from window motor breakout towards front	*Driver Door Harness Routing*	—
J504	Driver Door Harness	—	In the driver door, approximately 15.4 cm (6.06 in) from speaker breakout towards rear of vehicle	*Driver Door Harness Routing*	—
J505	Driver Door Harness	—	In the driver door, approximately 31.5 cm (12.4 in) from speaker breakout towards rear of vehicle	*Driver Door Harness Routing*	—
J600	Passenger Door Harness	—	In the passenger door, approximately 18.2 cm (7.17 in) from window motor breakout towards front of vehicle	*Passenger Door Harness Routing*	—
J700	Left Rear Door Harness	53	In the left rear door, near rear, approximately 15.9 cm (6.29 in) from speaker breakout towards rear of vehicle	*Left Rear Door Harness Routing (Exended Cab)*	—
J701	Left Rear Door Harness	43	In the left rear door, near front, approximately 6.0 cm (2.36 in) from window switch — left rear breakout towards window motor	*Left Rear Door Harness Routing (Crew Cab)*	—
J701	Left Rear Door Harness	53	In the left rear door, near rear, approximately 22 cm (8.66 in) from speaker breakout towards rear of vehicle	*Left Rear Door Harness Routing (Exended Cab)*	—
J800	Right Rear Door Harness	53	In the right rear door, near rear, approximately 16.2 cm (6.38 in) from speaker breakout towards rear of vehicle	*Right Rear Door Harness Routing (Extended Cab)*	—
J801	Right Rear Door Harness	43	In the right rear door, near front, approximately 6.0 cm (2.36 in) from window switch — right rear breakout towards window motor	*Right Rear Door Harness Routing (Crew Cab)*	—

J801	Right Rear Door Harness	53	In the right rear door, near rear, approximately 23.3 cm (9.17 in) from speaker breakout towards rear of vehicle	*Right Rear Door Harness Routing (Extended Cab)*	—
JX200	Splice Pack – Instrument Panel	—	In the passenger compartment, rear of the instrument panel, left of the steering column	*Instrument Panel Harness Routing - Rear*	*JX200 Instrument Panel Harness*
JX201	Splice Pack – Body	—	In the passenger compartment, rear of the instrument panel, left of the steering column	*Body Harness Routing - Left Front of Passenger Compartment (Crew Cab)*	*JX201 Instrument Panel Harness*

Electrical Center Identification Views

X50A Fuse Block - Underhood Label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*IF EQUIPPED

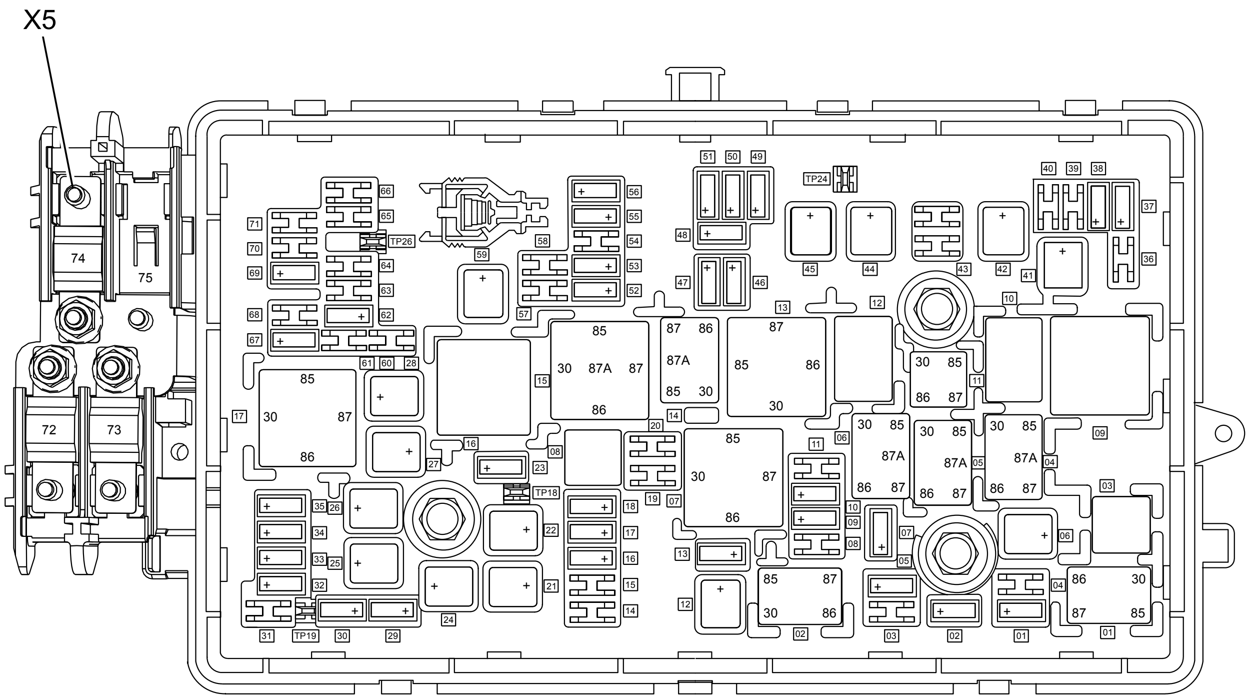
FUSES

F1	TCC BATT (15A)	F41	EMPTY
F2	ECM BATT (15A)	F42	EMPTY
F3	A/C CLTCH (10A)	F43	COOL FAN (60A)
F4	EMPTY	F44	EMPTY
F5	FUEL MDL RUN/CRNK (10A)	F45	VAC PUMP (60A)
F6	WPR (30A)	F46	EMPTY
F7	CARGO LAMP (15A)	F47	MISC 2 (10A)
F8	INJ EVEN (15A)	F48	FOG LAMP (15A)*
F9	INJ ODD (15A)	F49	EMPTY
F10	ECM (20A)	F50	TRLR PRK LAMP (20A)
F11	MISC 1 (10A)	F51	HORN (15A)
F12	STRTR (30A)	F52	EMPTY
F13	TCM (15A)	F53	EMPTY
F14	EMPTY	F54	EMPTY
F15	EMPTY	F55	EMPTY
F16	EMPTY	F56	WASH PUMP (15A)
F17	FRT AXLE ACT (10A)	F57	EMPTY
F18	EMPTY	F58	EMPTY
F19	AERO SHTR (10A)	F59	EMPTY
F20	EMPTY	F60	MIR DEFOG (7.5A)
F21	FRT BLWR (40A)	F61	EMPTY
F22	ABS VLV (30A)	F62	CNSTR VENT SOL (10A)
F23	EMPTY	F63	EMPTY
F24	TRLR (30A)	F64	TRLR REV LAMP (10A)
F25	TREC (30A)	F65	TRLR STOP/TRN LAMP LT (10A)
F26	ABS PUMP (60A)	F66	TRLR STOP/TRN LAMP RT (10A)
F27	TRLR BRK CNTRL MDL (30A)	F67	EPS (15A)
F28	REAR WNDW DEFOG (40A)	F68	EMPTY
F29	EMPTY	F69	RVC (5A)
F30	HTD SEAT BATT1 (15A)	F70	EMPTY
F31	EMPTY	F71	EMPTY
F32	HTD SEAT BATT2 (15A)	F72	EMPTY
F33	EMPTY	F73	EMPTY
F34	FSCM (30A)	F74	GEN (200A)
F35	EMPTY	F75	EMPTY
F36	CHMSL (10A)		
F37	HI BEAM RT (10A)		
F38	HI BEAM LT (10A)		
F39	EMPTY		
F40	EMPTY		

RELAYS

K1	A/C CLTCH	K7	PWR TRN	K13	VAC PUMP
K2	STRTR	K8	EMPTY	K14	PRK LAMPS
K3	EMPTY	K9	EMPTY	K15	RUN/CRNK
K4	WPR SPD	K10	EMPTY	K16	EMPTY
K5	WPR CNTRL	K11	CHMSL	K17	REAR WNDW DEFOG
K6	CARGO LAMP	K12	EMPTY		

X50A Fuse Block - Underhood Top View



X50A Fuse Block – Underhood Usage

No.	Device Label Name	Device Assigned Name	Rating	Description
Fuses				
F1	TCM BATT	F1UA Fuse	15A	K71 Transmission Control Module (MYB), Q8 Control Solenoid Valve Assembly (MYB)
F2	ECM BATT	F2UA Fuse	15A	K20 Engine Control Module
F3	A/C CLTCH	F3UA Fuse	10A	KR29 A/C Compressor Clutch Relay, Q2 A/C Compressor Clutch
F4	EMPTY	F4UA Fuse	—	Not Used
F5	FUEL MDL RUN/CRNK	F5UA Fuse	10A	K20 Engine Control Module, K71 Transmission Control Module (MYB), Q8 Control Solenoid Valve Assembly (MYB)
F6	WPR	F6UA Fuse	30A	KR12B Windshield Wiper Relay, KR12C Windshield Wiper Speed Control Relay
F7	CARGO LAMP	F7UA Fuse	15A	KR112 Cargo Lamp Relay
F8	INJ EVEN	F8UA Fuse	15A	K20 Engine Control Module (LFX), T8B Ignition Coil 2 (LFX), T8D Ignition Coil 4 (LFX), T8F Ignition Coil 6 (LFX)

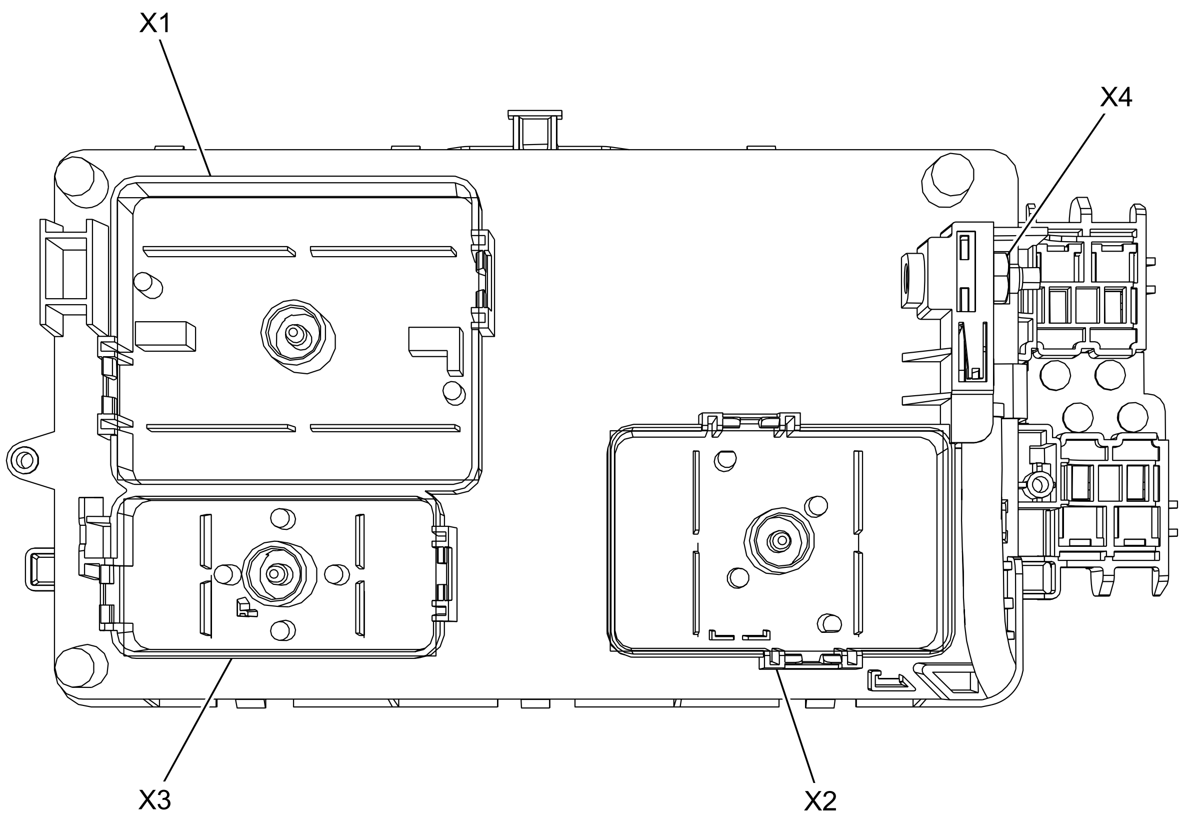
F9	INJ ODD	F9UA Fuse	15A	K20 Engine Control Module, T8A Ignition Coil 1 (LCV), T8B Ignition Coil 2 (LCV), T8C Ignition Coil 3 (LCV), T8D Ignition Coil 4 (LCV), T8A Ignition Coil 1 (LFX), T8C Ignition Coil 3 (LFX), T8E Ignition Coil 5 (LFX)
F10	ECM	F10UA Fuse	20A	K20 Engine Control Module
F11	MISC 1	F11UA Fuse	10A	B75C Multifunction Intake Air Sensor, B52B Heated Oxygen Sensor 2 (LCV), B52D Heated Oxygen Sensor - Bank 1 Sensor 2 (LFX), B52D Heated Oxygen Sensor - Bank 1 Sensor 2 (LFX)
F12	STRTR	F12UA Fuse	30A	KR27 Starter Relay
F13	TCM	F13UA Fuse	15A	Q8 Control Solenoid Valve Assembly (MYB), K71 Transmission Control Module (MYB)
F14	EMPTY	F14UA Fuse	—	Not Used
F15	EMPTY	F15UA Fuse	—	Spare Fuse
F16	EMPTY	F16UA Fuse	—	Not Used
F17	FRT AXLE ACT	F17UA Fuse	10A	M26 Front Axle Engagement Actuator (NQ6/NQ7)
F18	EMPTY	F18UA Fuse	—	Not Used
F19	AERO SHTR	F19UA Fuse	10A	M96 Active Grille Air Shutter Actuator
F20	EMPTY	F20UA Fuse	—	Not Used
F21	FRT BLWR	F21UA Fuse	40A	K8 Blower Motor Control Module
F22	ABS VLV	F22UA Fuse	30A	K17 Electronic Brake Control Module
F23	EMPTY	F23UA Fuse	—	Not Used
F24	TRLR	F24UA Fuse	30A	X88 Trailer Connector (Z82), W8 Blunt Cut - Trailer Provision
F25	TREC	F25UA Fuse	30A	A16 Transfer Case Motor (NQ6/NQ7), K69 Transfer Case Control Module (NQ6/NQ7)
F26	ABS PUMP	F26UA Fuse	60A	K17 Electronic Brake Control Module
F27	TRLR BRK CNTRL MDL	F27UA Fuse	30A	W24 Blunt Cut - Trailer Brakes Provision (Z82)
F28	REAR WNDW DEFOG	F28UA Fuse	40A	F63UA Fuse, E18 Rear Defogger Grid
F29	EMPTY	F29UA Fuse	—	Not Used
F30	HTD SEAT BATT1	F30UA Fuse	15A	K29 Seat Heating Control Module (KA1)
F31	EMPTY	F31UA Fuse	—	Not Used
F32	HTD SEAT BATT2	F32UA Fuse	15A	K29 Seat Heating Control Module (KA1)
F33	EMPTY	F33UA Fuse	—	Not Used
F34	FSCM	F34UA Fuse	30A	K111 Fuel Pump Driver Control Module (LCV), K38 Chassis Control Module (LFX)
F35	EMPTY	F35UA Fuse	—	Not Used
F36	CHMSL	F36UA Fuse	10A	KR41 Center High Mounted Stop Lamp Relay
F37	HI BEAM RT	F37UA Fuse	10A	E4F Headlamp – Right High Beam
F38	HI BEAM LT	F38UA Fuse	10A	E4E Headlamp – Left High Beam

F38	HI BEAM LT	F38UA Fuse	10A	E4E Headlamp – Left High Beam
F39	EMPTY	F39UA Fuse	—	Not Used
F40	EMPTY	F40UA Fuse	—	Not Used
F41	EMPTY	F41UA Fuse	—	Not Used
F42	EMPTY	F42UA Fuse	—	Not Used
F43	COOL FAN	F43UA Fuse	60A	K22 Cooling Fan Control Module
F44	EMPTY	F44UA Fuse	—	Not Used
F45	VAC PUMP	F45UA Fuse	60A	KR14 Brake Booster Pump Motor Relay (LFX)
F46	EMPTY	F46UA Fuse	—	Not Used
F47	MISC 2	F47UA Fuse	10A	Q12 Evaporative Emission Purge Solenoid Valve, E41 Engine Coolant Thermostat Heater (LCV), Q44 Engine Oil Pressure Control Solenoid Valve (LCV), K20 Engine Control Module (LCV), B52A Heated Oxygen Sensor 1 (LCV), B52C Heated Oxygen Sensor - Bank 1 Sensor 1 (LFX), B52E Heated Oxygen Sensor - Bank 2 Sensor 1 (LFX)
F48	FOG LAMP	F48UA Fuse	15A	E29LF Fog Lamp – Left Front (T3U), E29RF Fog Lamp – Right Front (T3U)
F49	EMPTY	F49UA Fuse	—	Not Used
F50	TRLR PRK LAMP	F50UA Fuse	20A	X88 Trailer Connector (Z82), W8 Blunt Cut - Trailer Provision
F51	HORN	F51UA Fuse	15A	P13 Horn Assembly
F52	EMPTY	F52UA Fuse	—	Not Used
F53	EMPTY	F53UA Fuse	—	Not Used
F54	EMPTY	F54UA Fuse	—	Not Used
F55	EMPTY	F55UA Fuse	—	Not Used
F56	WASH PUMP	F56UA Fuse	15A	G24 Windshield Washer Pump
F57	EMPTY	F57UA Fuse	—	Not Used
F58	EMPTY	F58UA Fuse	—	Not Used
F59	EMPTY	F59UA Fuse	—	Not Used
F60	MIR DEFOG	F60UA Fuse	7.5A	E17D Outside Rearview Mirror Glass – Driver, E17P Outside Rearview Mirror Glass – Passenger
F61	EMPTY	F61UA Fuse	—	Not Used
F62	CNSTR VENT SOL	F62UA Fuse	10A	Q13 Evaporative Emission Vent Solenoid Valve
F63	EMPTY	F63UA Fuse	—	Not Used
F64	TRLR REV LAMP	F64UA Fuse	10A	KR61 Trailer Backup Lamps Relay
F65	TRLR STOP/TRN LAMP LT	F65UA Fuse	10A	X88 Trailer Connector (Z82), W8 Blunt Cut - Trailer Provision
F66	TRLR STOP/TRN LAMP RT	F66UA Fuse	10A	KR63R Trailer Stop/Turn Signal Lamp Relay - Right
F67	EPS	F67UA Fuse	15A	K43 Power Steering Control Module

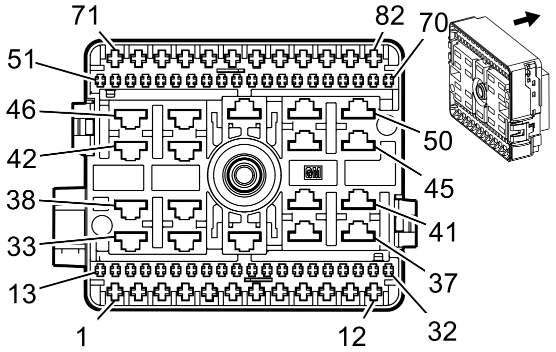
F67	EPS	F67UA Fuse	15A	K43 Power Steering Control Module
F68	EMPTY	F68UA Fuse	—	Not Used
F69	RVC	F69UA Fuse	5A	K9 Body Control Module
F70	EMPTY	F70UA Fuse	—	Not Used
F71	EMPTY	F71UA Fuse	—	Not Used
F72	EMPTY	F72UB Fuse	—	Not Used
F73	EMPTY	F73UB Fuse	—	Not Used
F74	GEN	F74UB Fuse	200A	G13 Generator
F75	EMPTY	F75UB Fuse	—	Not Used
K1	A/C CLTCH	KR29 A/C Compressor Clutch Relay	—	Q2 A/C Compressor Clutch
K2	STRTR	KR27 Starter Relay	—	M64 Starter Motor
K3	EMPTY	—	—	Not Used
K4	WPR SPD	KR12C Windshield Wiper Speed Control Relay	—	M75 Windshield Wiper Motor
K5	WPR CNTRL	KR12B Windshield Wiper Relay	—	M75 Windshield Wiper Motor
K6	CARGO LAMP	KR112 Cargo Lamp Relay	—	E6 Center High Mounted Stop Lamp
K7	PWR TRN	KR75 Engine Controls Ignition Relay	—	F9UA, F47UA Fuses, KR29 A/C Compressor Clutch Relay
K8	EMPTY	—	—	Not Used
K9	EMPTY	—	—	Not Used
K10	EMPTY	—	—	Not Used
K11	CHMSL	KR41 Center High Mounted Stop Lamp Relay	—	E6 Center High Mounted Stop Lamp
K12	EMPTY	—	—	Not Used
K13	VAC PUMP	KR14 Brake Booster Pump Motor Relay	—	M9 Brake Booster Pump Motor (LFX)
K14	PRK LAMPS	KR125 Trailer Park Lamps Relay	—	F49UA, F50UA Fuses
K15	RUN/CRNK	KR73 Ignition Main Relay	—	F5UA, F13UA, F16UA, F17UA, F18UA, F19UA, F52UA, F53UA, F54UA, F57UA Fuses
K16	EMPTY	—	—	Not Used
K17	REAR WNDW DEFOG	KR5 Rear Defogger Relay	—	F28UA, F60UA, F63UA Fuses, E17D Outside Rearview Mirror Glass – Driver, E17P Outside Rearview Mirror Glass – Passenger, E18 Rear Defogger Grid
—	—	KR3 Horn Relay	—	F51UA Fuse

—	—	KR11 Windshield Washer Pump Relay	—	F56UA Fuse
—	—	KR46 Front Fog Lamp Relay	—	F48UA Fuse
—	—	KR48 Headlamp High Beam Relay	—	F37UA, F38UA Fuses
—	—	KR61 Trailer Backup Lamps Relay	—	X88 Trailer Connector (Z82), W8 Blunt Cut - Trailer Provision
—	—	KR63L Trailer Stop/Turn Signal Lamp Relay - Left	—	F65UA Fuse, X88 Trailer Connector (Z82), W8 Blunt Cut - Trailer Provision
—	—	KR63R Trailer Stop/Turn Signal Lamp Relay - Right	—	X88 Trailer Connector (Z82), W8 Blunt Cut - Trailer Provision
—	—	KR113 Child Security Lock Disable Relay	—	A23LR Door Latch Assembly - Left Rear, A23RR Door Latch Assembly - Right Rear, A23P Door Latch Assembly - Passenger
TP18	CKT 3271	TP18	—	—
TP19	—	TP19	—	Not Used
TP24	CKT 1619	TP24	—	—
TP26	CKT 1624	TP26	—	—

X50A Fuse Block - Underhood Bottom View



X50A Fuse Block - Underhood X1



Connector Part Information

Harness Type: Forward Lamp

OEM Connector: 13262028

Service Connector: 13576528

Description: 82-Way F 1.5 DSQ, 2.8 Metri Pack 800 Series (BK)

Terminal Part Information

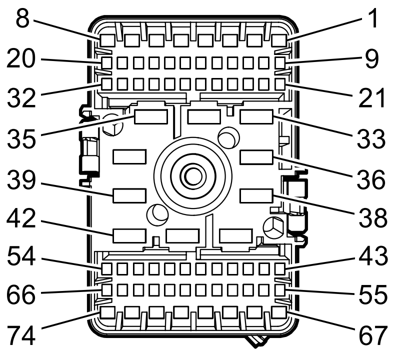
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	13327182	J-35616-35 (VT)	J-38125-36	2-964284-1	25	E	A
II	13327169	J-35616-14 (GN)	J-38125-560	962943-5	16	E	A
III	13327168	J-35616-44 (YE)	J-38125-558	Not Available	Not Available	Not Available	Not Available
IV	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available
V	13327168	J-35616-14 (GN)	J-38125-560	962943-5	16	E	A
VI	13327116	J-35616-14 (GN)	J-38125-560	Not Available	Not Available	Not Available	Not Available

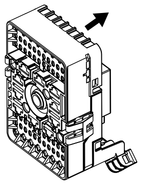
X50A Fuse Block - Underhood X1

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1-7	-	-	-	Not Occupied	-	-
8	1.5	BN	2109	Trailer Park Lamp Supply Voltage	VI	-
9-10	-	-	-	Not Occupied	-	-
11	0.75	BN/GY	29	Horn Control	I	-
12	-	-	-	Not Occupied	-	-
13	0.75	WH	311	Right Headlamp High Beam Supply Voltage	II	-
14	0.75	WH	711	Left Headlamp High Beam Supply Voltage	II	-
15-29	-	-	-	Not Occupied	-	-
30	0.75	GY/VT	228	Windshield Washer Pump Control	II	-
31	0.75	BN/VT	2234	Front Fog Lamp Supply Voltage	II	-

32-34	-	-	-	Not Occupied	-	-
35	6	RD/GY	4840	Battery Positive Voltage	III	-
36-49	-	-	-	Not Occupied	-	-
50	2.5	BN/VT	1470	Brake Booster Pump Motor Supply Voltage	IV	-
51-67	-	-	-	Not Occupied	-	-
68	0.5	BN	6305	Brake Vacuum Switch Signal	V	-
69	0.5	WH/VT	4333	Aero Shutter Actuator Supply Voltage	V	-
70	-	-	-	Not Occupied	-	-
71	0.75	BK	1150	Ground	I	-
72	1.5	WH	92	Windshield Wiper Motor High Speed Control	VI	-
73	1.5	YE/BN	95	Windshield Wiper Motor Low Speed Control	VI	-
74	1.5	BK	3150	Ground	VI	-
75	0.5	VT/GY	1054	Stop Lamp Supply Voltage	I	-
76-79	-	-	-	Not Occupied	-	-
80	0.75	WH/VT	1430	Exterior Courtesy Lamp Supply Voltage	I	-
81-82	-	-	-	Not Occupied	-	-

X50A Fuse Block - Underhood X2





Connector Part Information

Harness Type: Body

OEM Connector: 13732284

Service Connector: 13576544

Description: 74-Way F 1.5 DSQ, 2.8 Metri Pack 800 Series (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available
II	13327168	J-35616-14 (GN)	J-38125-560	962943-5	16	E	A
III	13327169	J-35616-14 (GN)	J-38125-560	962943-5	16	E	A
IV	13327104	J-35616-44 (YE)	J-38125-558	12092445	18	G	G
V	13327183	J-35616-35 (VT)	J-38125-36	4-965999-1	25	4	A
VI	13327104	J-35616-44 (YE)	J-38125-558	Not Available	Not Available	Not Available	Not Available
VII	19299860	J-35616-35 (VT)	J-38125-36	Not Available	Not Available	Not Available	Not Available
VIII	13327116	J-35616-14 (GN)	J-38125-560	Not Available	Not Available	Not Available	Not Available

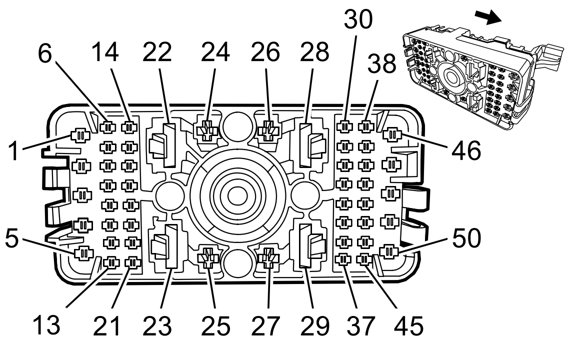
X50A Fuse Block - Underhood X2

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1-3	-	-	-	Not Occupied	-	-
4	1.5 0.75	GY GY	295 295	Door Lock Actuator Lock Control Door Lock Actuator Lock Control	V	CREW CAB EXTENDED CAB
5	1.5	WH/L-BU	3266	Child Security Lock Motor Unlock Control	V	-
6-11	-	-	-	Not Occupied	-	-
12	1.5	GY/L-GN	3271	Door Lock Control (2)	I	-
13	0.5	VT/YE	3267	Child Security Lock Relay Control	II	-
14	0.75	VT/BK	2139	Run/Crank Ignition 1 Voltage	III	-
15-16	-	-	-	Not Occupied	-	-

15-16	-	-	-	Not Occupied	-	-
17	0.5	L-GN/VT	5199	Run/Crank Relay Coil Control	II	-
18	-	-	-	Not Occupied	-	-
19	0.5	BN/WH	1317	Fog Lamp Relay Control	II	-
20-21	-	-	-	Not Occupied	-	-
22	0.5	GY	91	Windshield Wiper Motor Relay Coil Supply Voltage	II	-
23	-	-	-	Not Occupied	-	-
24	0.5	L-BU	45	Park Lamp Relay Control	II	-
25	0.5	BN/WH	28	Horn Relay Control	II	-
26-29	-	-	-	Not Occupied	-	-
30	0.75	L-GN	1619	Right Rear Trailer Stop/Turn Lamp Supply Voltage	III	-
31-32	-	-	-	Not Occupied	-	-
33	2.5	RD/VT	542	Battery Positive Voltage	I	-
34	2.5	RD/YE	442	Battery Positive Voltage	I	-
35	-	-	-	Not Occupied	-	-
36	4	OG	742	Battery Positive Voltage	IV	-
37-38	-	-	-	Not Occupied	-	-
39	2.5	BN/VT	293	Rear Defog Element Supply Voltage	I	-
40	2.5	RD/GY	1342	Battery Positive Voltage	VI	-
41	4	RD/GY	1042	Battery Positive Voltage	IV	-
42	2.5	RD/L-GN	242	Battery Positive Voltage	I	-
43	0.5	BK	3150	Ground	II	-
44	-	-	-	Not Occupied	-	-
45	0.5	WH/VT	860	Front Windshield Wiper Switch High Signal	II	-
46	0.5	VT/WH	5065	Stop Lamp Relay Coil Supply Voltage	II	-
47	0.5	BN/WH	1429	Standing Lamp Relay Control	II	-
48	0.5	L-BU/BN	38	Backup Lamp Relay Control	II	-
49	0.5	L-BU/WH	5186	Left Trailer Turn Signal Lamp	II	-
50	-	-	-	Not Occupied	-	-
51	0.75	YE	1618	Left Rear Trailer Stop/Turn Lamp Supply Voltage	III	-
52	0.75	GY	1624	Trailer Backup Lamp Supply Voltage	III	-
53-55	-	-	-	Not Occupied	-	-

53-55	-	-	-	Not Occupied	-	-
56	0.75	RD/L-GN	5140	Battery Positive Voltage	III	-
57	-	-	-	Not Occupied	-	-
58	0.5	BN/VT	1969	Headlamp High Beam Relay Control	II	-
59	0.5	YE/GY	5187	Right Trailer Turn Signal Lamp	II	-
60	0.5	BN/GY	2268	Windshield Washer Relay Control	II	-
61	0.5	BN/VT	193	Rear Defog Relay Control	II	-
62	0.5	BN/YE	2267	Mirror Heating Element Supply Voltage	II	-
63-67	-	-	-	Not Occupied	-	-
68	0.75	RD/L-GN	6140	Battery Positive Voltage	VII	-
69	-	-	-	Not Occupied	-	-
70	2.5	RD/VT	1940	Battery Positive Voltage	VIII	-
71	-	-	-	Not Occupied	-	-
72	0.5	RD/BN	440	Battery Positive Voltage	VII	-
73	0.5	RD/L-GN	2440	Battery Positive Voltage	VII	-
74	0.5	RD/BN	5940	Battery Positive Voltage	VII	-

X50A Fuse Block - Underhood X3



Connector Part Information

Harness Type: Engine

OEM Connector: 13732282

Service Connector: 13505902

Description: 50-Way F 1.5, 2.8 DSQ Metri Pack 800 Series (BK)

Terminal Part Information

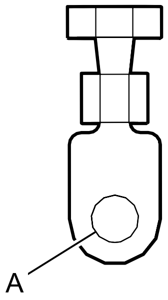
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	19299860	J-35616-35 (VT)	J-38125-36	Not Available	Not Available	Not Available	Not Available
II	13327168	J-35616-14 (GN)	J-38125-560	962943-5	16	E	A
III	13327169	J-35616-14 (GN)	J-38125-560	962943-5	16	E	A
IV	13327183	J-35616-35 (VT)	J-38125-36	4-965999-1	25	4	A
V	13575773	J-35616-2A(GY)	J-38125-560	Not Available	Not Available	Not Available	Not Available
VI	13575774	J-35616-2A(GY)	J-38125-560	Not Available	Not Available	Not Available	Not Available
VII	13575781	J-35616-35 (VT)	J-38125-36	Not Available	Not Available	Not Available	Not Available

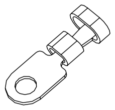
X50A Fuse Block - Underhood X3

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	1 0.75	VT/L-BU VT/L-BU	5290 5290	Powertrain Main Relay Fused Supply (1) Powertrain Main Relay Fused Supply (1)	I	- LCV
2	0.75	VT/L-BU	5291	Powertrain Main Relay Fused Supply (2)	I	-
3	0.75	VT/L-BU	5292	Powertrain Main Relay Fused Supply (3)	I	-
4	0.5	VT/BK	2139	Run/Crank Ignition 1 Voltage	I	-
5	2.5	YE	6	Starter Solenoid Crank Voltage	IV	-
6	0.5	VT/L-BU	5293	Powertrain Main Relay Fused Supply (4)	II	-
7	0.5	VT/L-BU	5294	Powertrain Main Relay Fused Supply (5)	II	-
8-10	-	-	-	Not Occupied	-	-
11	0.5	VT/GY	6386	Starter Enable Relay (PPEI 3) Control	II	-

11	0.5	VT/GY	6386	Starter Enable Relay (PPEI 3) Control	II	-
12-14	-	-	-	Not Occupied	-	-
15	0.5	BK	1450	Ground	V	-
16	-	-	-	Not Occupied	-	-
17	0.5	YE	5991	Powertrain Relay Coil Control	II	-
18-19	-	-	-	Not Occupied	-	-
20	0.75	VT/GY	139	Run/Crank Ignition 1 Voltage	III	-
21	0.5	BK	1450	Ground	II	-
22-26	-	-	-	Not Occupied	-	-
27	0.5	RD/WH	140	Battery Positive Voltage	I	-
28-33	-	-	-	Not Occupied	-	-
34	0.5	WH/GY	459	A/C Compressor Clutch Relay Control	II	-
35-36	-	-	-	Not Occupied	-	-
37	0.75	RD/L-GN	1840	Battery Positive Voltage	III	-
38-49	-	-	-	Not Occupied	-	-
50	0.75	BN/L-GN	59	A/C Compressor Clutch Supply Voltage	I	-

X50A Fuse Block - Underhood X4





Connector Part Information

Harness Type: Fuse Block - Underhood

OEM Connector: 15327720

Service Connector: Service by Cable Assembly — See Part Catalog

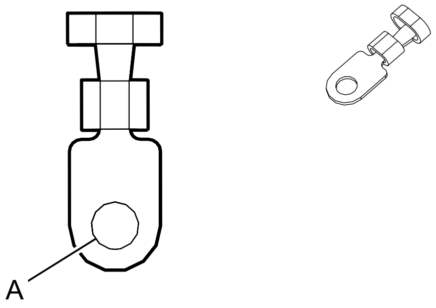
Description: 1-Way Ring Terminal (NA)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	No Tool Required	Not Available	Not Available	Not Available	Not Available	Not Available

X50A Fuse Block - Underhood X4

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	35	RD/WH	4042	Battery Positive Voltage	I	—



Connector Part Information

Harness Type: Fuse Block - Underhood

OEM Connector: ANJ76203

Service Connector: Service by Cable Assembly — See Part Catalog

Description: 1-Way Ring Terminal (NA)

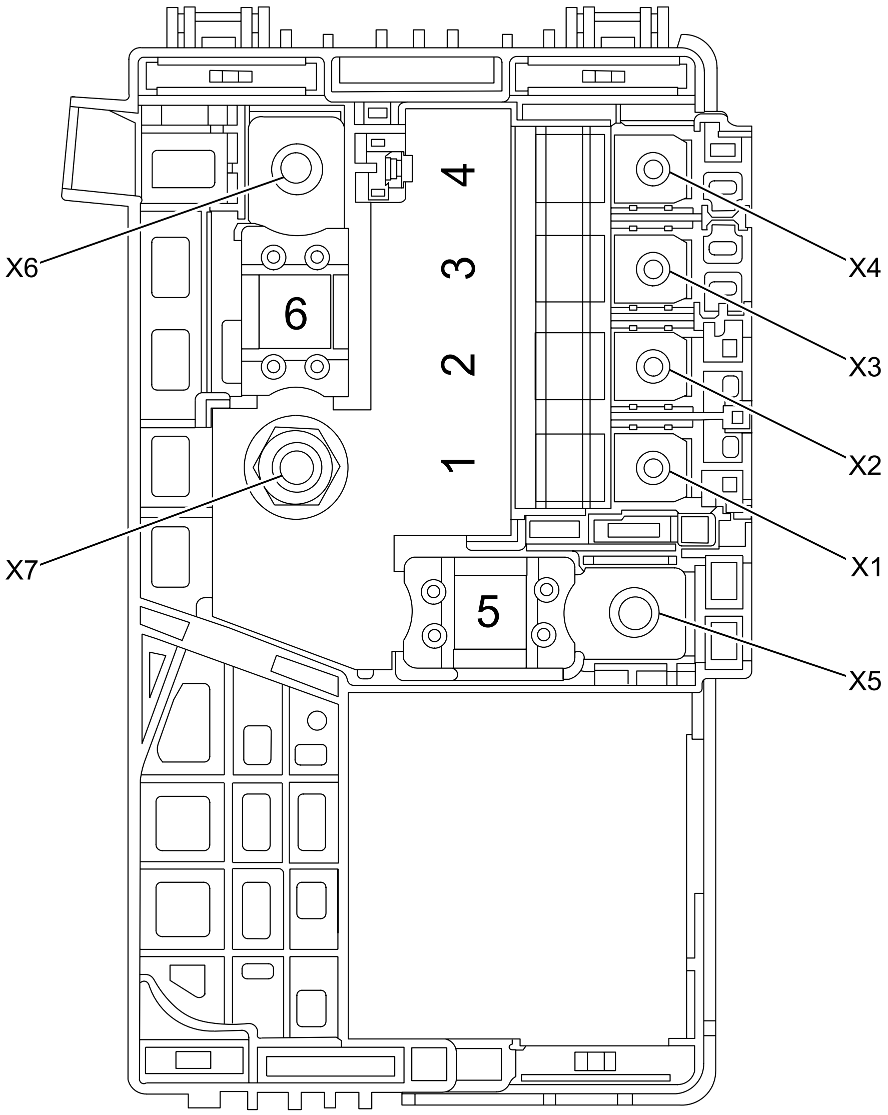
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	No Tool Required	Not Available	Not Available	Not Available	Not Available	Not Available

X50A Fuse Block - Underhood X5

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	25	RD/YE	2	Battery Positive Voltage	I	—

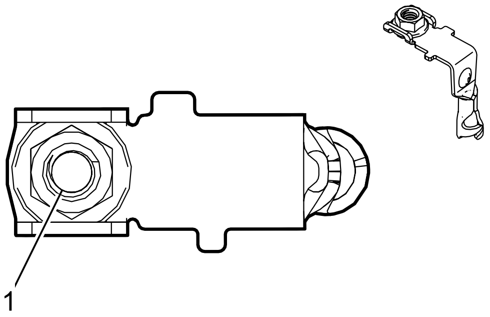
X50D Fuse Block - Battery Top View



X50D Fuse Block - Battery Usage

No.	Device Label Name	Device Assigned Name	Rating	Description
1	—	F1UB	100A	K43 Power Steering Control Module
2	—	F2UB	100A	X51A Fuse Block – Instrument Panel
3	—	F3UB	100A	X51A Fuse Block – Instrument Panel
4	—	F4UB	100A	K22 Cooling Fan Control Module
5	—	F5UB	250A	X50A Fuse Block – Underhood
6	—	F6UB	300A	M64 Starter Motor

X50D Fuse Block - Battery X1



Connector Part Information

Harness Type: Fuse Block - Battery

OEM Connector: 13371977

Service Connector: Service by Cable Assembly — See Part Catalog

Description: 1-Way Ring Terminal (NA)

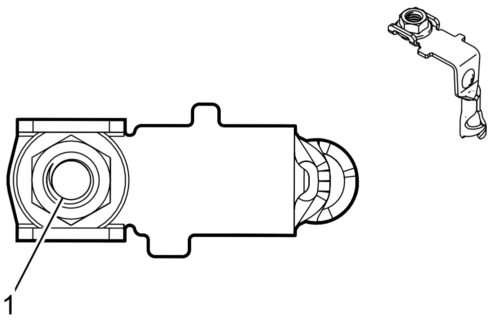
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	No Tool Required	Not Available	Not Available	Not Available	Not Available	Not Available

X50D Fuse Block - Battery X1

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	10	RD/VT	842	Battery Positive Voltage	I	—

X50D Fuse Block - Battery X2



Connector Part Information

Harness Type: Fuse Block - Battery

OEM Connector: 13371976

Service Connector: Service by Cable Assembly — See Part Catalog

Description: 1-Way Ring Terminal (NA)

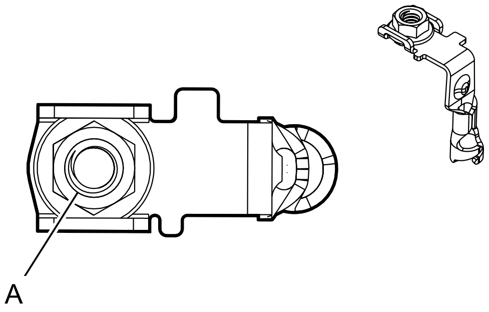
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	No Tool Required	Not Available	Not Available	Not Available	Not Available	Not Available

X50D Fuse Block - Battery X2

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	10	RD/L-BU	42	Battery Positive Voltage	I	—

X50D Fuse Block - Battery X3



Connector Part Information

Harness Type: Fuse Block - Battery

OEM Connector: 13371979

Service Connector: Service by Cable Assembly — See Part Catalog

Description: 1-Way Ring Terminal (NA)

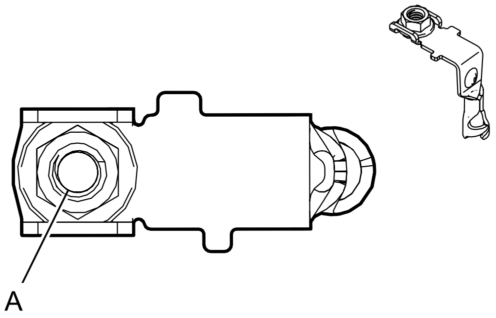
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	No Tool Required	Not Available	Not Available	Not Available	Not Available	Not Available

X50D Fuse Block - Battery X3

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	10	RD/VT	842	Battery Positive Voltage	I	—

X50D Fuse Block - Battery X4



Connector Part Information

Harness Type: Fuse Block - Battery

OEM Connector: 13371978

Service Connector: Service by Cable Assembly — See Part Catalog

Description: 1-Way Ring Terminal (NA)

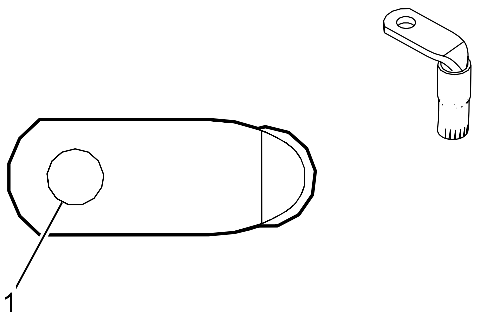
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	No Tool Required	Not Available	Not Available	Not Available	Not Available	Not Available

X50D Fuse Block - Battery X4

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	10	RD/GY	4840	Battery Positive Voltage	I	LFX

X50D Fuse Block - Battery X5



Connector Part Information

Harness Type: Fuse Block - Battery

OEM Connector: 13293547

Service Connector: Service by Cable Assembly — See Part Catalog

Description: 1-Way Ring Terminal (NA)

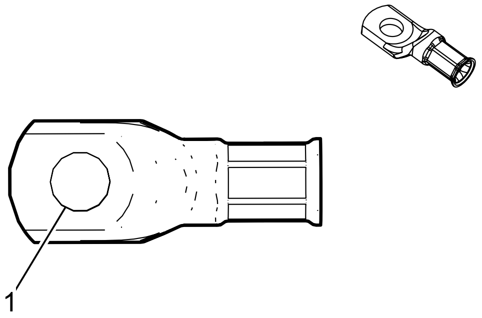
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	No Tool Required	Not Available	Not Available	Not Available	Not Available	Not Available

X50D Fuse Block - Battery X5

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	35	RD/WH	4042	Battery Positive Voltage	I	—

X50D Fuse Block - Battery X6



Connector Part Information

Harness Type: Fuse Block - Battery

OEM Connector: 10730988

Service Connector: Service by Cable Assembly — See Part Catalog

Description: 1-Way Ring Terminal (NA)

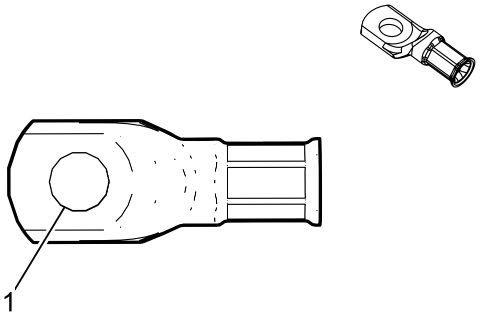
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	No Tool Required	Not Available	Not Available	Not Available	Not Available	Not Available

X50D Fuse Block - Battery X6

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	35	RD	2	Battery Positive Voltage	I	—

X50D Fuse Block - Battery X7



Connector Part Information

Harness Type: Fuse Block - Battery

OEM Connector: 13303048

Service Connector: Service by Cable Assembly — See Part Catalog

Description: 1-Way Ring Terminal (NA)

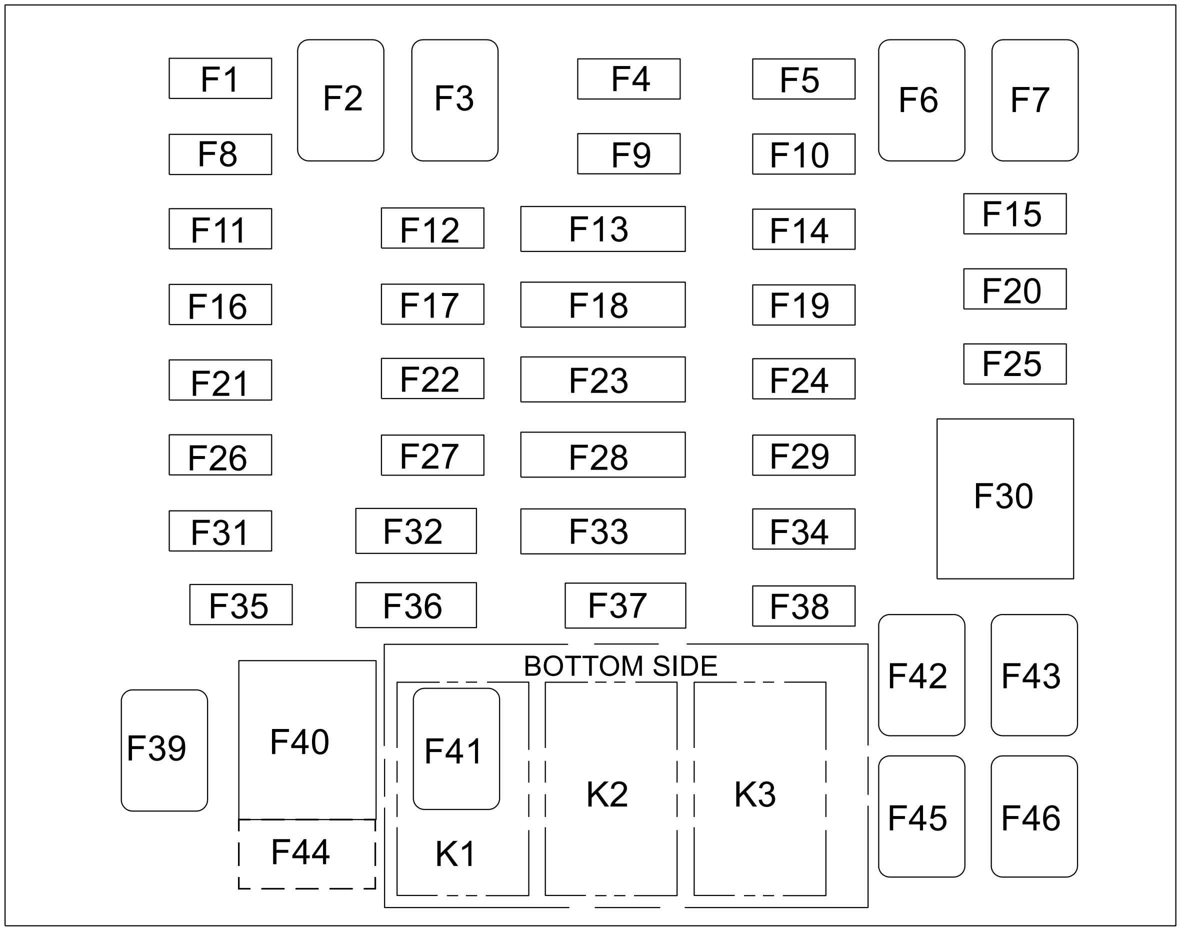
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	No Tool Required	Not Available	Not Available	Not Available	Not Available	Not Available

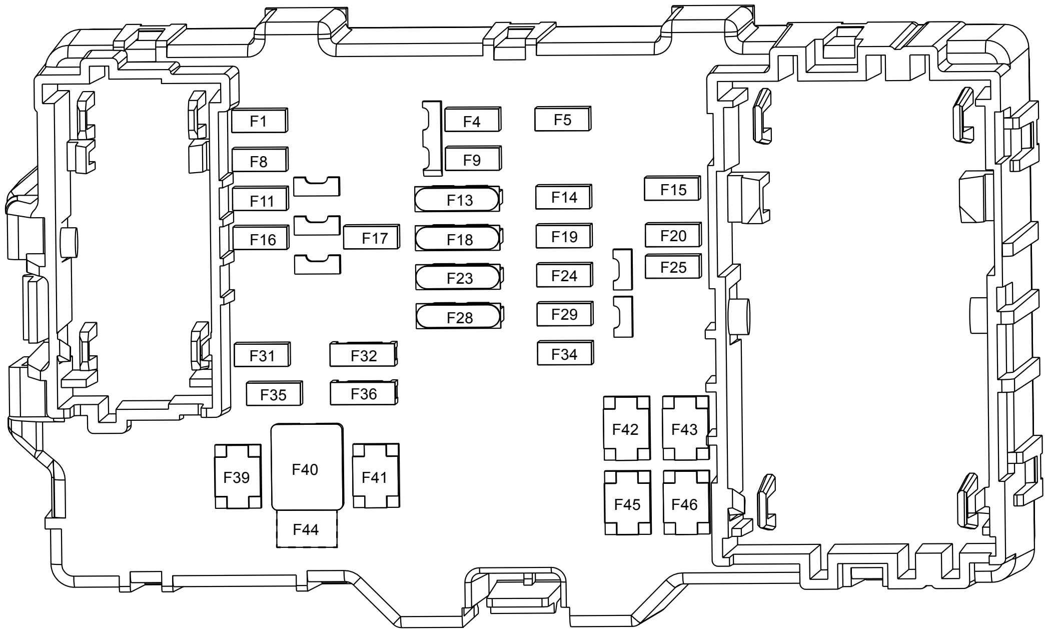
X50D Fuse Block - Battery X7

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	35	RD	1	Battery Positive Voltage	I	—

X51A Fuse Block - Instrument Panel Label


F1
F2
F3
F4
F5
F6
F7
F8
F9
F10
F11
F12
F13
F14
F15
F16
F17
F18
F19
F20
F21
F22
F23
F24
F25
F26
F27
F28
F29
F30
F31
F32
F33
F34
F35
F36
F37
F38
BOTTOM SIDE
F42
F43
F39
F40
F41
K2
K3
F44
K1
F45
F46

X51A Fuse Block - Instrument Panel Top View Fuses


F1
F8
F11
F16
F17
F4
F9
F5
F13
F18
F23
F28
F14
F19
F24
F29
F34
F15
F20
F25
F31
F32
F35
F36
F39
F40
F41
F44
F42
F43
F45
F46

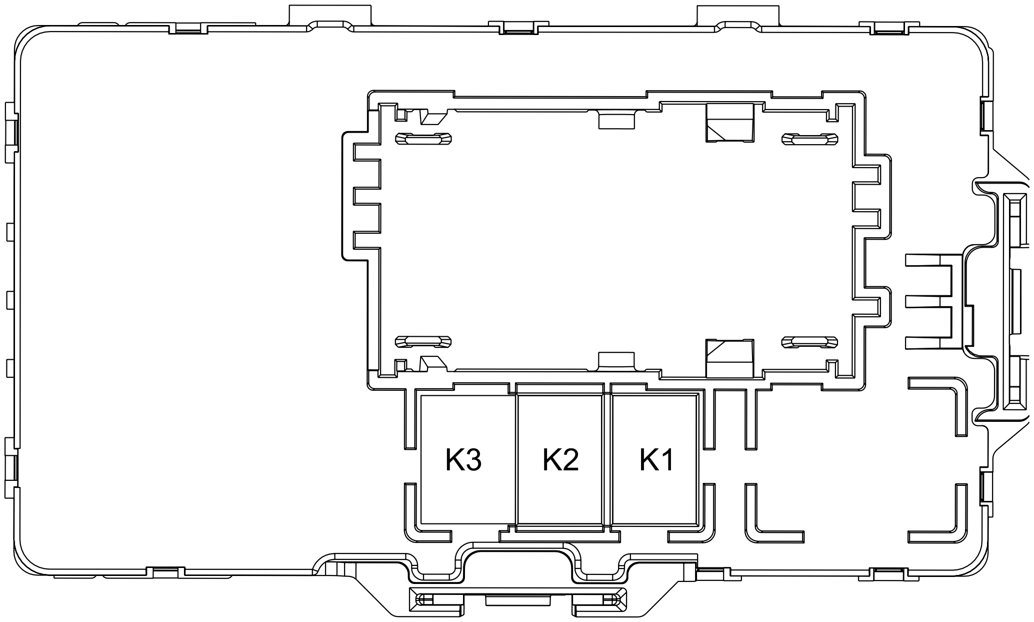
X51A Fuse Block – Instrument Panel Fuse Usage

No.	Device Label Name	Device Assigned Name	Rating	Description
F1	F1	F1DA	15A	K9 Body Control Module
F2	F2	F2DA	—	Not Used
F3	F3	F3DA	—	Not Used
F4	F4	F4DA	5A	S70L Steering Wheel Controls Switch − Left
F5	F5	F5DA	20A	K9 Body Control Module
F6	F6	F6DA	—	Not Used
F7	F7	F7DA	—	Not Used
F8	F8	F8DA	5A	S79D Window Switch − Driver (AXG), S52 Outside Rearview Mirror Switch (DL6/DL9)
F9	F9	F9DA	10A	P16 Instrument Cluster, P17 Info Display Module, S32D Seat Heating Switch − Driver (KA1), S32P Seat Heating Switch − Passenger (KA1), A26 HVAC Controls
F10	F10	F10DA	—	Not Used
F11	F11	F11DA	30A	K9 Body Control Module
F12	F12	F12DA	—	Not Used
F13	F13	F13DA	10A	K33 HVAC Control Module, K73 Telematics Communication Interface Control Module (UE1)
F14	F14	F14DA	20A	A11 Radio, K74 Human Machine Interface Control Module (IO4/IO5/IO6), A33 Media Disc Player (TG5)

				(TG5)
F15	F15	F15DA	15A	K9 Body Control Module
F16	F16	F16DA	20A	K9 Body Control Module
F17	F17	F17DA	20A	K9 Body Control Module
F18	F18	F18DA	10A	K85 Passenger Presence Module, K36 Inflatable Restraint Sensing and Diagnostic Module
F19	F19	F19DA	—	Not Used
F20	F20	F20DA	30A	T3 Audio Amplifier (UQA)
F21	F21	F21DA	—	Not Used
F22	F22	F22DA	—	Not Used
F23	F23	F23DA	10A	X84 Data Link Connector, X83 Auxiliary Audio Input
F24	F24	F24DA	5A	K33 HVAC Control Module
F25	F25	F25DA	20A	K9 Body Control Module
F26	F26	F26DA	—	Not Used
F27	F27	F27DA	—	Not Used
F28	F28	F28DA	10A	P14 Passenger Air Bag Disabled Indicator, P16 Instrument Cluster, and P43 Collision Alert Indicators (UEU)
F29	F29	F29DA	10A	B87 Rearview Camera (UVC), K69 Transfer Case Control Module (NQ6/NQ7), A10 Inside Rearview Mirror
F30	F30	F30DA	—	Not Used
F31	F31	F31DA	10A	B174 Frontview Camera
F32	F32	F32DA	2A	S48A Multifunction Switch - Instrument Panel, S77 Transfer Case Shift Control Switch (NQ6/NQ7), S30 Headlamp Switch, X85 Steering Wheel Air Bag Coil
F33	F33	F33DA	—	Not Used
F34	F34	F34DA	—	Not Used
F35	F35	F35DA	10A	P2 Transmission Shift Lever Position Indicator (MYB)
F36	F36	F36DA	2A	S39 Ignition Switch
F37	F37	F37DA	—	Not Used
F38	F38	F38DA	—	Not Used
F39	F39	F39DA	15A	X80B Accessory Power Receptacle − Center Console 2
F40	F40	F40DA	50A	F39DA, F41DA
F41	F41	F41DA	15A	X80A Accessory Power Receptacle − Center Console 1
F42	F42	F42DA	30A	M74D Window Motor − Driver (AXG), S79LR Window Switch − Left Rear (AXG)
F43	F43	F43DA	30A	S64D Seat Adjuster Switch − Driver (AL9)

F43	F43	F43DA	30A	S64D Seat Adjuster Switch − Driver (AL9)
F44	F44	F44DA	50A	X80A Accessory Power Receptacle − Center Console 1, X80B Accessory Power Receptacle − Center Console 2
F45	F45	F45DA	30A	S79P Window Switch − Passenger (AXG), S79RR Window Switch − Right Rear (AXG)
F46	F46	F46DA	30A	S64P Seat Adjuster Switch − Passenger (AAQ)

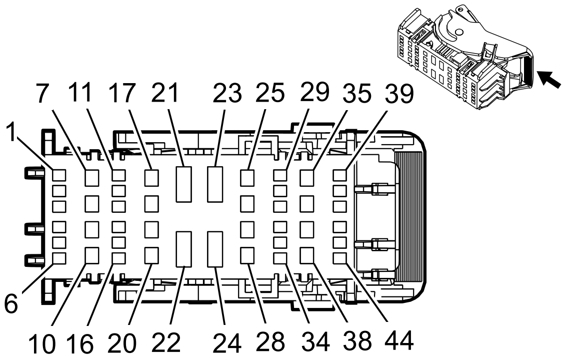
X51A Fuse Block - Instrument Panel Bottom View Relays



X51A Fuse Block - Instrument Panel Usage

No.	Device Label Name	Device Assigned Name	Rating	Description
Relays				
K1	K1	KR76 Retained Accessory Power Relay	—	F44DA, F35DA
K2	K2	KR73 Ignition Main Relay	—	F24DA, F28DA, F29DA
K3	K3	—	—	Not Used

X51A Fuse Block - Instrument Panel X1



Connector Part Information

Harness Type: Body

OEM Connector: 13967687

Service Connector: 19329455

Description: 44-Way F 1.5, 2.8, 800 Metri Pack Series (BK)

Terminal Part Information

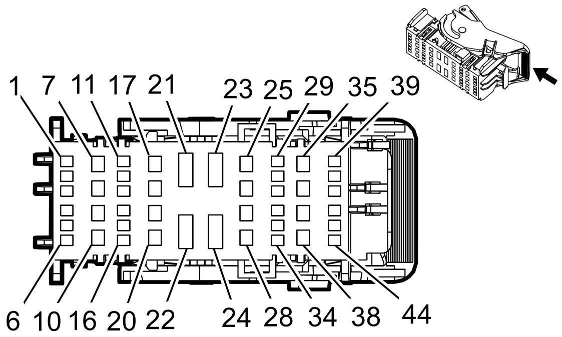
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	19119962	J-35616-2A (GY)	J-38125-560	Not Available	Not Available	Not Available	Not Available
II	19329747	J-35616-35 (VT)	J-38125-12A	Not Available	Not Available	Not Available	Not Available
III	Not Available	J-35616-44 (YE)	J-38125-558	12092445	18	E	1
IV	19119962	J-35616-2A (GY)	J-38125-560	13849930	Not Available	Not Available	Not Available
V	19119962	J-35616-2A (GY)	J-38125-560	PE200554	Not Available	Not Available	Not Available
VI	19329747	J-35616-35 (VT)	J-38125-12A	PE199135	Not Available	Not Available	Not Available
VII	13327190	J-35616-44 (YE)	J-38125-558	12092445	18	E	1

X51A Fuse Block - Instrument Panel X1

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	RD/BN	2240	Battery Positive Voltage	V	-
2	0.5	RD/GY	2840	Battery Positive Voltage	V	-
3	0.35	RD/YE	3040	Battery Positive Voltage	V	-
4	0.5	RD/GY	2140	Battery Positive Voltage	V	-
5	0.5	RD/L-GN	4440	Battery Positive Voltage	V	-
6-13	-	-	-	Not Occupied	-	-
14	0.35	RD/L-BU	3240	Battery Positive Voltage	V	-
15	-	-	-	Not Occupied	-	-
16	0.35	RD/VT	1940	Battery Positive Voltage	V	-

17	2.5	RD/YE	3740	Battery Positive Voltage	VI	-
18	1.5	RD/WH	2740	Battery Positive Voltage	VI	-
19	1.5	RD/VT	2640	Battery Positive Voltage	VI	-
20	-	-	-	Not Occupied	-	-
21	10	RD/VT	842	Battery Positive Voltage	III	-
22	-	-	-	Not Occupied	-	-
23	10	RD/L-BU	42	Battery Positive Voltage	III	-
24	-	-	-	Not Occupied	-	-
25	2.5	RD/L-BU	1240	Battery Positive Voltage	VI	-
26	-	-	-	Not Occupied	-	-
27	2.5	RD/YE	5040	Battery Positive Voltage	VI	-
28-31	-	-	-	Not Occupied	-	-
32	0.35	VT/L-GN	1739	Run/Crank Ignition 1 Voltage	V	-
33-34	-	-	-	Not Occupied	-	-
35	2.5	RD/WH	1340	Battery Positive Voltage	VI	-
36	2.5	RD/BN	1440	Battery Positive Voltage	VI	-
37-41	-	-	-	Not Occupied	-	-
42	0.35	L-GN/VT	5199	Run/Crank Relay Coil Control	V	-
43	0.35	GY/VT	755	RAP Relay Coil Control	V	-
44	0.35	VT	801	Retained Accessory Power Fuse Supply Voltage	V	-

X51A Fuse Block - Instrument Panel X2



Connector Part Information

Harness Type: Body

OEM Connector: 13967688

Service Connector: 19329456

Description: 44-Way F 1.5, 2.8, 800 Metri Pack Series (GY)

Terminal Part Information

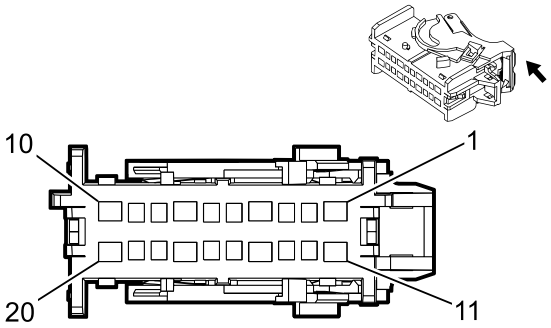
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	19329747	J-35616-35 (VT)	J-38125-12A	Not Available	Not Available	Not Available	Not Available
II	19119962	J-35616-2A (GY)	J-38125-560	Not Available	Not Available	Not Available	Not Available

X51A Fuse Block - Instrument Panel X2

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1-2	-	-	-	Not Occupied	-	-
3	0.35	YE	6817	LED Backlight Dimming Control	II	-
4	0.35	BN	6136	Supply Voltage	II	-
5	0.5	RD/L-BU	540	Battery Positive Voltage	II	-
6	-	-	-	Not Occupied	-	-
7	2.5	RD/VT	4040	Battery Positive Voltage	I	-
8	2.5	RD/YE	2340	Battery Positive Voltage	I	-
9	-	-	-	Not Occupied	-	-
10	1.5	VT	2101	Retained Accessory Power Fuse Supply Voltage	I	-
11-13	-	-	-	Not Occupied	-	-
14	0.5	RD/VT	340	Battery Positive Voltage	II	-
15-17	-	-	-	Not Occupied	-	-
18	2.5	RD/L-GN	2440	Battery Positive Voltage	I	-
19	-	-	-	Not Occupied	-	-

20	1.5	VT	1701	Retained Accessory Power Fuse Supply Voltage	I	-
21-24	-	-	-	Not Occupied	-	-
25	0.5	RD/VT	3340	Battery Positive Voltage	I	-
26	-	-	-	Not Occupied	-	-
27	0.5	RD/WH	640	Battery Positive Voltage	I	-
28	0.5	VT/BK	1639	Run/Crank Ignition 1 Voltage	I	-
29-34	-	-	-	Not Occupied	-	-
35	1	RD/VT	340	Battery Positive Voltage	I	-
36	-	-	-	Not Occupied	-	-
37	0.35	VT/GY	539	Run/Crank Ignition 1 Voltage	I	-
38	0.5	VT/L-GN	1739	Run/Crank Ignition 1 Voltage	I	-
39-43	-	-	-	Not Occupied	-	-
44	0.75	BK	2050	Ground	II	-

X51A Fuse Block - Instrument Panel X3



Connector Part Information

Harness Type: Body

OEM Connector: 13924034

Service Connector: 15522322

Description: 20-Way F 1.5, 2.8 Series (BK)

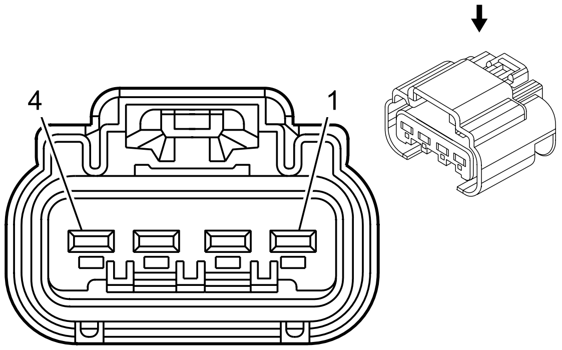
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	19119962	J-35616-2A (GY)	J-38125-560	Not Available	Not Available	Not Available	Not Available
II	19329747	J-35616-35 (VT)	J-38125-12A	Not Available	Not Available	Not Available	Not Available

X51A Fuse Block - Instrument Panel X3

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1-11	-	-	-	Not Occupied	-	-
12	0.35	RD/L-GN	3140	Battery Positive Voltage	I	-
13	0.5	VT/L-GN	1739	Run/Crank Ignition 1 Voltage	I	-
14	0.35	VT/WH	1139	Run/Crank Ignition 1 Voltage	II	-
15-20	-	-	-	Not Occupied	-	-

A7 Fuel Pump and Level Sensor Assembly



Connector Part Information

Harness Type: Chassis

OEM Connector: 88988992

Service Connector: 13587174

Description: 4-Way F 280 GT Series, Sealed (NA with BU Terminal Position Assurance)

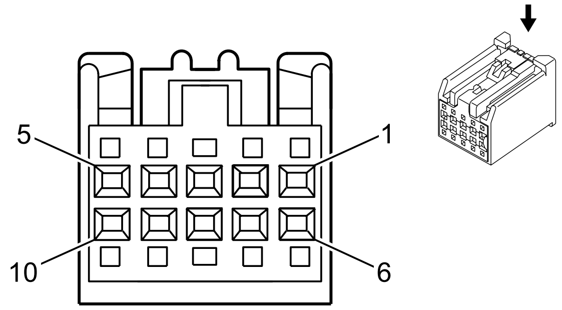
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-4A (PU)	Not Available	Not Available	Not Available	Not Available	Not Available

A7 Fuel Pump and Level Sensor Assembly

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	2.5	GY	120	Fuel Pump Supply Voltage	I	-
2	2.5	BK/L-GN	1580	Fuel Pump Low Reference	I	-
3	0.5	BK/L-GN	6281	Fuel Level Sensor Low Reference	I	-
4	0.5	L-BU/VT	1589	Primary Fuel Level Sensor Signal	I	-

A10 Inside Rearview Mirror



Connector Part Information

Harness Type: Headliner

OEM Connector: AIT2PB-10P-2AK

Service Connector: 13577390

Description: 10-Way F 0.64 Kaizen Series (BK)

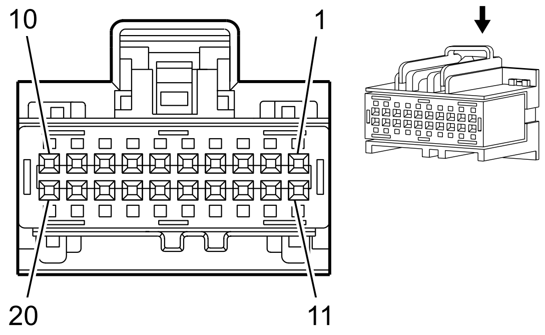
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	13575867	J-35616-64B (L-BU)	J-38125-215A	Not Available	Not Available	Not Available	Not Available
II	Not Available	J-35616-64B (L-BU)	Not Available	Not Available	Not Available	Not Available	Not Available

A10 Inside Rearview Mirror

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	L-GN/WH	24	Backup Lamp Supply Voltage	I	-
2	0.5	VT/L-GN	1739	Run/Crank Ignition 1 Voltage	I	-
3	0.35	L-GN/WH	2514	Keypad Signal	I	-
4	0.35	L-GN/BK	2515	Keypad Supply Voltage	I	-
5	0.5	BK	3150	Ground	I	-
6	0.35	YE/VT	2516	Keypad Green LED	I	-
7	0.35	BN/WH	2517	Keypad Red LED	I	-
8-10	-	-	-	Not Occupied	-	-

A11 Radio X1



Connector Part Information

Harness Type: Instrument Panel

OEM Connector: 31410-1201

Service Connector: 15126710

Description: 20-Way F 64 Series, Sealed (GY with WH Terminal Position Assurance)

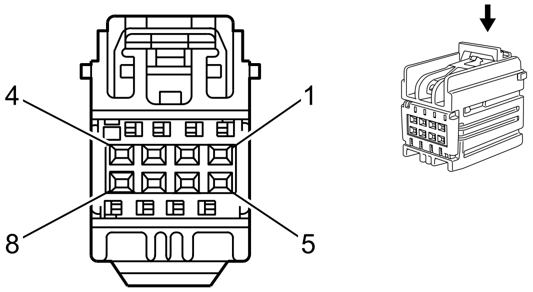
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	13575845	J-35616-64B (L-BU)	J-38125-215A	Not Available	Not Available	Not Available	Not Available

A11 Radio X1

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1-3	-	-	-	Not Occupied	-	-
4	0.35	WH/L-BU	6973	Camera Signal #2	I	-
5	0.35	GY/YE	6972	Camera Signal #2 +	I	-
6	0.5	BARE	5842	Auxiliary Audio Screen (2)	I	-
7	0.35	L-BU	2060	Auxiliary Detection Signal	I	-
8	0.35	VT	5843	Auxiliary Audio Common Signal	I	-
9	0.35	GY	5839	Left Auxiliary Audio Signal (2)	I	-
10	0.35	L-GN	5841	Right Auxiliary Audio Signal (2)	I	-
11-12	-	-	-	Not Occupied	-	-
13	0.5	L-GN/L-BU	7532	Linear Interconnect Network Bus 10	I	-
14	0.5	L-GN	5060	Low Speed GMLAN Serial Data	I	-
15-18	-	-	-	Not Occupied	-	-
19	0.35	BK/YE	659	Cellular Telephone Voice Low Reference	I	-
20	0.35	YE	658	Cellular Telephone Voice Signal	I	-

A11 Radio X2



Connector Part Information

Harness Type: Instrument Panel

OEM Connector: 7283-9029-40

Service Connector: 19115653

Description: 8-Way F YESC Kaizen Series (L-GY)

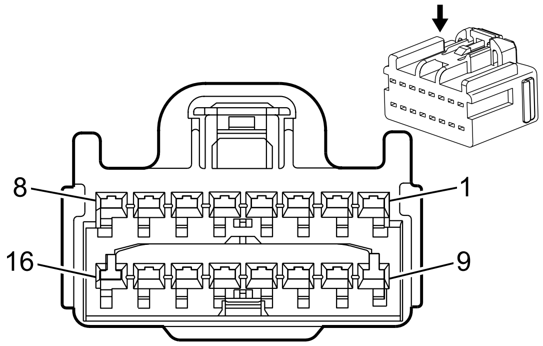
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-64B (L-BU)	Not Available	Not Available	Not Available	Not Available	Not Available

A11 Radio X2

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	WH/L-GN	3997	MOST Serial Data (-)	I	-
2	0.5	GY/VT	3998	MOST Serial Data (+)	I	-
3	0.5	WH/L-GN	3997	MOST Serial Data (-)	I	-
4	0.5	GY/VT	3998	MOST Serial Data (+)	I	-
5-6	-	-	-	Not Occupied	-	-
7	0.35	WH/VT	3999	MOST Control	I	-
8	-	-	-	Not Occupied	-	-

A11 Radio X3



Connector Part Information

Harness Type: Instrument Panel

OEM Connector: 7283-6453-60

Service Connector: 89047090

Description: 16-Way F 1.5 Kaizen Series (GN)

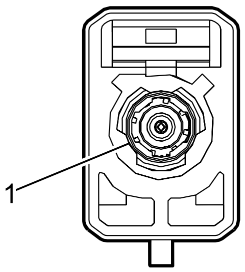
Terminal Part Information

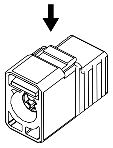
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	13575829	J-35616-2A (GY)	J-38125-11A	Not Available	Not Available	Not Available	Not Available

A11 Radio X3

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	L-BU	201	Left Front Speaker (+) (1)	I	-
2	0.75	YE	200	Right Front Speaker (+) (1)	I	-
3	0.75	L-GN	199	Left Rear Speaker (+)	I	-
4	0.75	WH	46	Right Rear Speaker (+)	I	-
5-7	-	-	-	Not Occupied	-	-
8	1	RD/VT	340	Battery Positive Voltage	I	-
9	0.75	BN/L-BU	118	Left Front Speaker Signal (-) (1)	I	-
10	0.75	YE/BK	117	Right Front Speaker Signal (-) (1)	I	-
11	0.75	L-GN/BK	116	Left Rear Speaker Signal (-)	I	-
12	0.75	L-BU/BK	115	Right Rear Speaker Signal (-)	I	-
13-15	-	-	-	Not Occupied	-	-
16	1	BK/WH	2051	Signal Ground	I	-

A11 Radio X4





Connector Part Information

Harness Type: Instrument Panel COAX

OEM Connector: 13581701

Service Connector: Service by Cable Assembly - See Part Catalog

Description: 1-Way F COAX (BK)

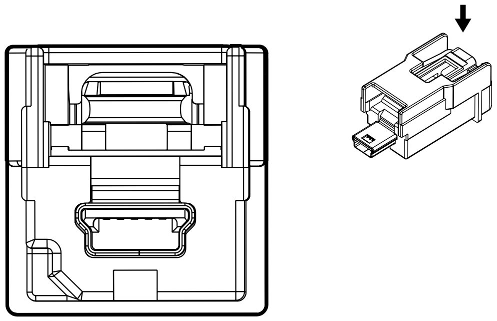
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available

A11 Radio X4

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
-	-	COAX	-	(AM/FM) Antenna RF Signal	I	-

A11 Radio X7



Connector Part Information

Harness Type: Instrument Panel LVDS

OEM Connector: 13581318

Service Connector: Service by Harness - See Part Catalog

Description: 5-Way M 2.0 Mini B USB Type (GY)

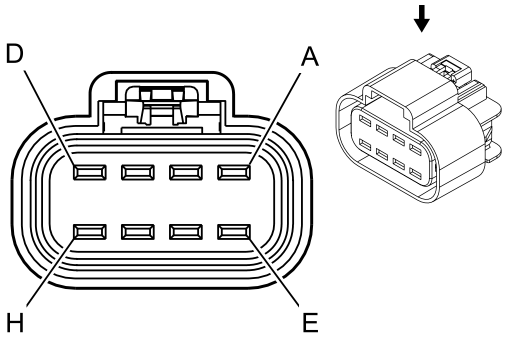
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available

A11 Radio X7

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
-	-	LVDS	-	(Navigation) Navigation Display Signal	I	-

A16 Transfer Case Motor (NQ6/NQ7)



Connector Part Information

Harness Type: Engine

OEM Connector: 13538370

Service Connector: 19329743

Description: 8-Way F 280 GT 5.8 Series, Sealed (BK)

Harness Type: Engine

OEM Connector: 19153749

Service Connector: 19329743

Description: 8-Way F 280 GT 5.8 Series, Sealed (BK)

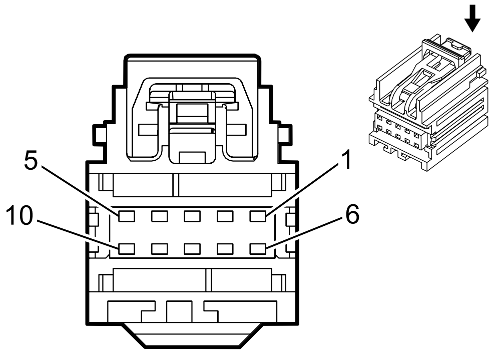
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-4A (PU)	Not Available	Not Available	Not Available	Not Available	Not Available

A16 Transfer Case Motor (NQ6/NQ7)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	2.5	YE/GY	1552	Transfer Case Motor Clockwise Control	I	-
B	2.5	RD/GY	1342	Battery Positive Voltage	I	NQ6
C	2.5	YE/BN	1569	Transfer Case Lock Solenoid Control	I	NQ6
D	2.5	YE/VT	1553	Transfer Case Motor Counter Clockwise Control	I	-
E	0.5	L-BU/GY	7473	Incremental Encoder Impulse Signal	I	-
F	0.5	YE	7474	Incremental Encoder Direction Signal	I	-
G	0.5	WH/L-GN	7475	Incremental Encoder Sensor (8V) Supply	I	-
H	0.5	VT	7476	Incremental Encoder Sensor Return	I	-

A23D Door Latch Assembly - Driver



Connector Part Information

Harness Type: Driver Door

OEM Connector: 7283-9043-60

Service Connector: Service by Harness - See Part Catalog

Description: 10-Way F 0.64 YESC Kaizen Series (GN)

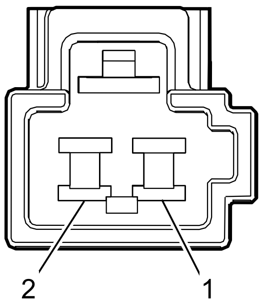
Terminal Part Information

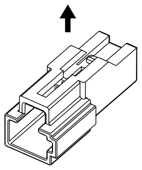
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-64B (L-BU)	Not Available	Not Available	Not Available	Not Available	Not Available

A23D Door Latch Assembly - Driver

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	GY	745	Left Front Door Ajar Switch Signal	I	-
2	-	-	-	Not Occupied	-	-
3	0.35	BK	3550	Ground	I	-
4	0.35	WH/VT	3270	Driver Door Lock Motor Status	I	-
5	0.35	L-BU/VT	1124	Door Lock Key Switch Unlock Signal	I	-
6	-	-	-	Not Occupied	-	-
7	0.75	GY	5911	Door Lock Actuator Lock Control 2	I	-
8	0.75	BN/YE	294	Door Lock Actuator Unlock Control	I	-
9-10	-	-	-	Not Occupied	-	-

A23G Door Latch Assembly - Left Rear Lower (Extended Cab)





Connector Part Information

Harness Type: Left Rear Door

OEM Connector: 7282-1020

Service Connector: Service by Harness - See Part Catalog

Description: 2-Way M 090 Series (BU)

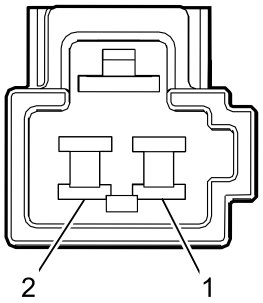
Terminal Part Information

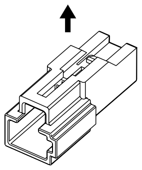
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-64B (L-BU)	Not Available	Not Available	Not Available	Not Available	Not Available

A23G Door Latch Assembly - Left Rear Lower (Extended Cab)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	BK	3350	Ground	I	-
2	0.35	GY	747	Left Rear Door Ajar Switch Signal	I	-

A23H Door Latch Assembly - Left Rear Upper (Extended Cab)





Connector Part Information

Harness Type: Left Rear Door

OEM Connector: 7282-1020

Service Connector: Service by Harness - See Part Catalog

Description: 2-Way M 090 Series (BU)

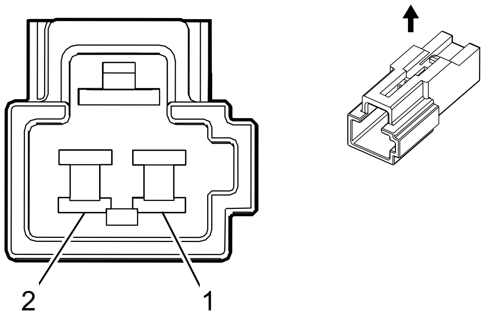
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-64B (L-BU)	Not Available	Not Available	Not Available	Not Available	Not Available

A23H Door Latch Assembly - Left Rear Upper (Extended Cab)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	BK	3350	Ground	I	-
2	0.35	GY	747	Left Rear Door Ajar Switch Signal	I	-

A23J Door Latch Assembly - Right Rear Lower (Extended Cab)



Connector Part Information

Harness Type: Right Rear Door

OEM Connector: 7282-1020

Service Connector: Service by Harness - See Part Catalog

Description: 2-Way M 090 Series (BU)

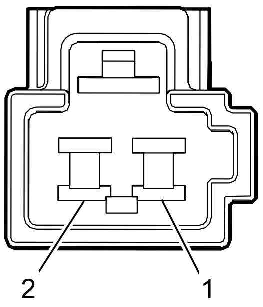
Terminal Part Information

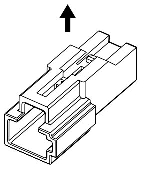
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-64B (L-BU)	Not Available	Not Available	Not Available	Not Available	Not Available

A23J Door Latch Assembly - Right Rear Lower (Extended Cab)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	BK	3450	Ground	I	-
2	0.35	GY	748	Right Rear Door Ajar Switch Signal	I	-

A23K Door Latch Assembly - Right Rear Upper (Extended Cab)





Connector Part Information

Harness Type: Right Rear Door

OEM Connector: 7282-1020

Service Connector: Service by Harness - See Part Catalog

Description: 2-Way M 090 Series (BU)

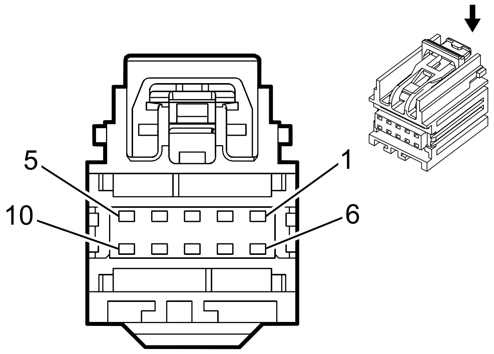
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-64B (L-BU)	Not Available	Not Available	Not Available	Not Available	Not Available

A23K Door Latch Assembly - Right Rear Upper (Extended Cab)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	BK	3450	Ground	I	-
2	0.35	GY	748	Right Rear Door Ajar Switch Signal	I	-

A23LR Door Latch Assembly - Left Rear (Crew Cab)



Connector Part Information

Harness Type: Left Rear Door

OEM Connector: 7283-9043-60

Service Connector: Service by Harness - See Part Catalog

Description: 10-Way F 0.64 YESC Kaizen Series (GN)

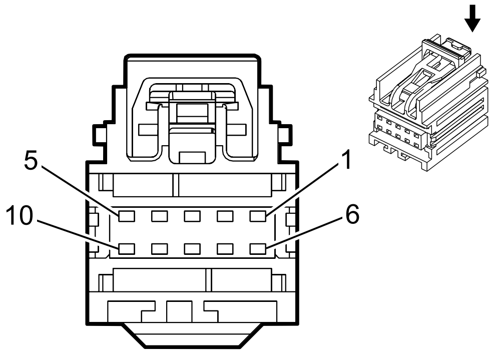
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-64B (L-BU)	Not Available	Not Available	Not Available	Not Available	Not Available

A23LR Door Latch Assembly - Left Rear (Crew Cab)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	GY	747	Left Rear Door Ajar Switch Signal	I	-
2	0.35	BN/WH	3269	Child Security Lock Motor Status Signal Left Rear	I	-
3	0.35	BK	3350	Ground	I	-
4-6	-	-	-	Not Occupied	-	-
7	0.75	GY	295	Door Lock Actuator Lock Control	I	-
8	0.75	BN/YE	294	Door Lock Actuator Unlock Control	I	-
9	0.75	WH/L-BU	3266	Child Security Lock Motor Unlock Control	I	-
10	-	-	-	Not Occupied	-	-

A23P Door Latch Assembly - Passenger



Connector Part Information

Harness Type: Passenger Door

OEM Connector: 7283-9043-60

Service Connector: Service by Harness - See Part Catalog

Description: 10-Way F 0.64 YESC Kaizen Series (GN)

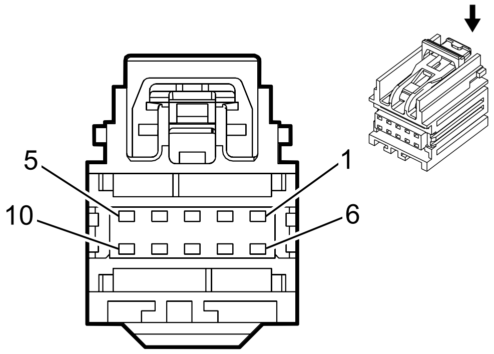
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-64B (L-BU)	Not Available	Not Available	Not Available	Not Available	Not Available

A23P Door Latch Assembly - Passenger

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1-2	-	-	-	Not Occupied	-	-
3	0.35	BK	3650	Ground	I	-
4	-	-	-	Not Occupied	-	-
5	0.35	GY	746	Right Front Door Ajar Switch Signal	I	-
6-7	-	-	-	Not Occupied	-	-
8	0.75	BN/YE	294	Door Lock Actuator Unlock Control	I	-
9	0.75	GY	295	Door Lock Actuator Lock Control	I	-
10	-	-	-	Not Occupied	-	-

A23RR Door Latch Assembly - Right Rear (Crew Cab)



Connector Part Information

Harness Type: Right Rear Door

OEM Connector: 7283-9043-60

Service Connector: Service by Harness - See Part Catalog

Description: 10-Way F 0.64 YESC Kaizen Series (GN)

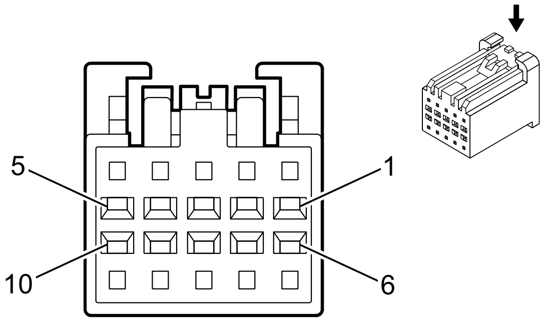
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-64B (L-BU)	Not Available	Not Available	Not Available	Not Available	Not Available

A23RR Door Latch Assembly - Right Rear (Crew Cab)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1-2	-	-	-	Not Occupied	-	-
3	0.35	BK	3450	Ground	I	-
4	0.35	GY/BK	3268	Child Security Lock Motor Status Signal Right Rear	I	-
5	0.35	GY	748	Right Rear Door Ajar Switch Signal	I	-
6	-	-	-	Not Occupied	-	-
7	0.75	WH/L-BU	3266	Child Security Lock Motor Unlock Control	I	-
8	0.75	BN/YE	294	Door Lock Actuator Unlock Control	I	-
9	0.75	GY	295	Door Lock Actuator Lock Control	I	-
10	-	-	-	Not Occupied	-	-

A26 HVAC Controls



Connector Part Information

Harness Type: Instrument Panel

OEM Connector: AIT2PB-10P-2BH

Service Connector: 19299775

Description: 10-Way F 0.64 Kaizen Series (GY)

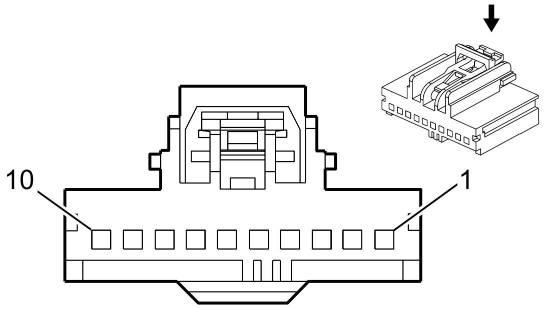
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	13575867	J-35616-64B (L-BU)	J-38125-215A	Not Available	Not Available	Not Available	Not Available

A26 HVAC Controls

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	RD/GY	2840	Battery Positive Voltage	I	-
2	-	-	-	Not Occupied	-	-
3	0.35	L-GN	5060	Low Speed GMLAN Serial Data	I	-
4-8	-	-	-	Not Occupied	-	-
9	0.35	L-GN/YE	7531	Linear Interconnect Network Bus 9	I	-
10	0.35	BK/WH	2051	Signal Ground	I	-

A33 Media Disc Player (TG5)



Connector Part Information

Harness Type: Instrument Panel

OEM Connector: 7283-9088-30

Service Connector: 89047355

Description: 10-Way F 0.64 Kaizen Series (BK)

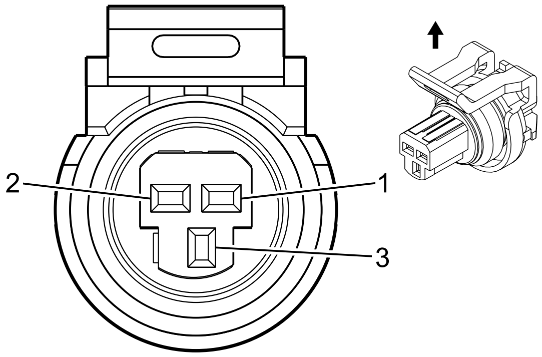
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	13575845	J-35616-64B (L-BU)	J-38125-215A	Not Available	Not Available	Not Available	Not Available
II	19303553	J-35616-64B (L-BU)	J-38125-11A	Not Available	Not Available	Not Available	Not Available

A33 Media Disc Player (TG5)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	WH/VT	3999	MOST Control	I	-
2	-	-	-	Not Occupied	-	-
3	0.5	WH/L-GN	3997	MOST Serial Data (-)	I	-
4	0.5	GY/VT	3998	MOST Serial Data (+)	I	-
5	0.5	WH/L-GN	3997	MOST Serial Data (-)	I	-
6	0.5	GY/VT	3998	MOST Serial Data (+)	I	-
7	-	-	-	Not Occupied	-	-
8	0.75	BK/WH	2051	Signal Ground	II	-
9	-	-	-	Not Occupied	-	-
10	0.75	RD/VT	340	Battery Positive Voltage	II	-

B1 A/C Refrigerant Pressure Sensor



Connector Part Information

Harness Type: Engine

OEM Connector: 13532244

Service Connector: 88988301

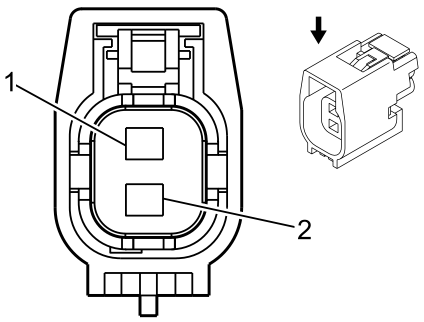
Description: 3-Way F 150 GT Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-2A (GY)	Not Available	Not Available	Not Available	Not Available	Not Available
II	Not Available	J-35616-14 (GN)	Not Available	Not Available	Not Available	Not Available	Not Available

B1 A/C Refrigerant Pressure Sensor

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BK/BN	5514	A/C Refrigerant Pressure Sensor Low Reference	I	-
2	0.5	BN/RD	2700	A/C Pressure Sensor 5 Volt Reference	I	-
3	0.5	L-GN	380	A/C Refrigerant Pressure Sensor Signal	I	-



Connector Part Information

Harness Type: Chassis

OEM Connector: 19153615

Service Connector: 13586115

Description: 2-Way F 1.5 GT Series, Sealed (BK)

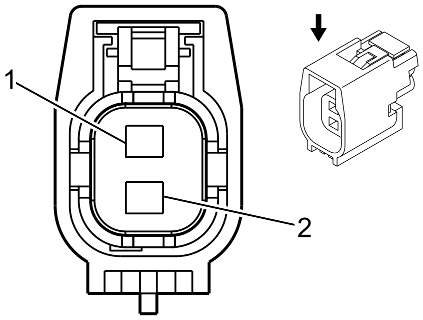
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-2A (GY)	Not Available	Not Available	Not Available	Not Available	Not Available

B5LF Wheel Speed Sensor - Left Front

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	GY/WH	7064	Wheel Speed Sensor Supply Voltage Left Front	I	-
2	0.5	GY	830	Wheel Speed Sensor Signal Left Front	I	-

B5LR Wheel Speed Sensor - Left Rear



Connector Part Information

Harness Type: Chassis

OEM Connector: 19153615

Service Connector: 13586115

Description: 2-Way F 1.5 GT Series, Sealed (BK)

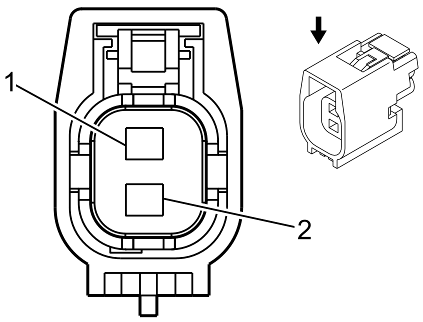
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-2A (GY)	Not Available	Not Available	Not Available	Not Available	Not Available

B5LR Wheel Speed Sensor - Left Rear

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	GY/BK	7127	Wheel Speed Sensor Supply Voltage Left Rear	I	-
2	0.5	L-BU	884	Wheel Speed Sensor Signal Left Rear	I	-

B5RF Wheel Speed Sensor - Right Front



Connector Part Information

Harness Type: Chassis

OEM Connector: 19153615

Service Connector: 13586115

Description: 2-Way F 1.5 GT Series, Sealed (BK)

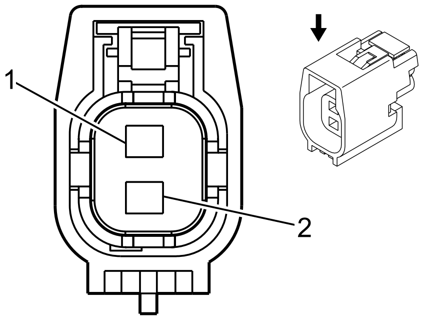
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-2A (GY)	Not Available	Not Available	Not Available	Not Available	Not Available

B5RF Wheel Speed Sensor - Right Front

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	GY/BN	7065	Wheel Speed Sensor Supply Voltage Right Front	I	-
2	0.5	YE	872	Wheel Speed Sensor Signal Right Front	I	-

B5RR Wheel Speed Sensor - Right Rear



Connector Part Information

Harness Type: Chassis

OEM Connector: 19153615

Service Connector: 13586115

Description: 2-Way F 1.5 GT Series, Sealed (BK)

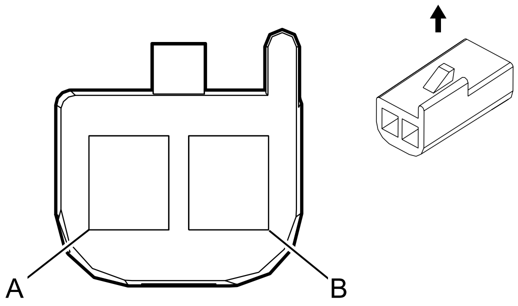
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-2A (GY)	Not Available	Not Available	Not Available	Not Available	Not Available

B5RR Wheel Speed Sensor - Right Rear

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	GY/YE	7128	Wheel Speed Sensor Supply Voltage Right Rear	I	-
2	0.5	VT	882	Wheel Speed Sensor Signal Right Rear	I	-

B7B Air Temperature Sensor - Duct Lower (C68)



Connector Part Information

Harness Type: HVAC

OEM Connector: 12047662

Service Connector: 12085535

Description: 2-Way F 150 Metri Pack Series (BK)

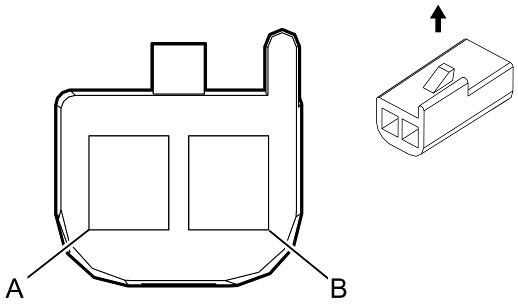
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	13575464	J-35616-14 (GN)	J-38125-12A	15326030	2	E	C

B7B Air Temperature Sensor - Duct Lower (C68)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	0.35	BN	518	Lower Left Air Temperature Sensor Signal	I	C68
B	0.35	BK/YE	407	Sensor Low Reference	I	C68

B7F Air Temperature Sensor - Duct Upper (C68)



Connector Part Information

Harness Type: HVAC

OEM Connector: 12047662

Service Connector: 12085535

Description: 2-Way F 150 Metri Pack Series (BK)

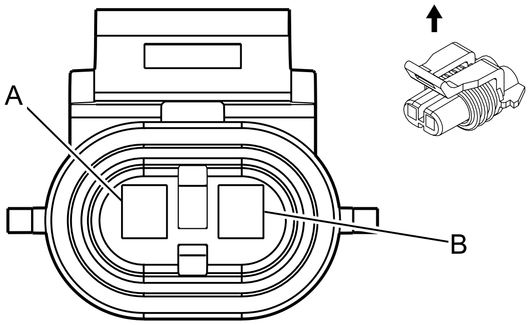
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	13575464	J-35616-14 (GN)	J-38125-12A	15326030	2	E	C

B7F Air Temperature Sensor - Duct Upper (C68)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	0.35	BN	516	Upper Left Air Temperature Sensor Signal	I	C68
B	0.35	BK/YE	407	Sensor Low Reference	I	C68

B9 Ambient Air Temperature Sensor



Connector Part Information

Harness Type: Forward Lamp

OEM Connector: 13543521

Service Connector: 12101856

Description: 2-Way F 150 Metri Pack Series, Sealed (BK)

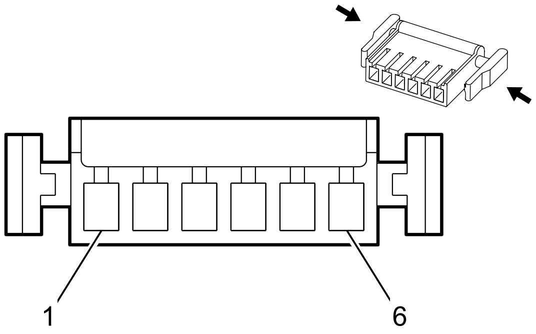
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-14 (GN)	J-38125-12A	12048074	2	E	1

B9 Ambient Air Temperature Sensor

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	0.5	L-BU/GY	636	Outside Ambient Air Temperature Sensor Signal	I	-
B	0.5	BK/L-BU	61	Outside Ambient Temperature Sensor Low Reference	I	-

B10B Ambient Light/Sunload Sensor



Connector Part Information

Harness Type: Instrument Panel

OEM Connector: 13726957

Service Connector: 13576539

Description: 6-Way F 0.64 Micro Quadlock Series (BK)

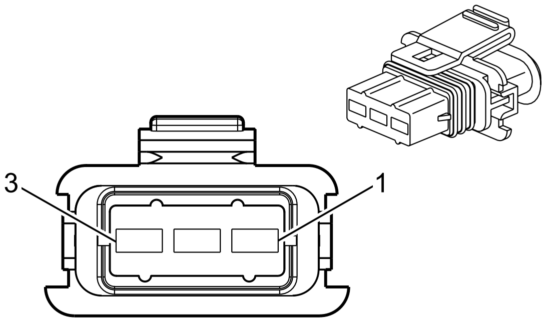
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-64B (LT BU)	Not Available	Not Available	Not Available	Not Available	Not Available

B10B Ambient Light/Sunload Sensor

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	GY	728	Security Indicator Control	I	-
2	-	-	-	Not Occupied	-	-
3	0.35	L-BU/WH	734	Inside Air Temperature Sensor Signal	I	-
4	0.35	YE/VT	1783	Twilight Sentinel Delay Signal	I	-
5	0.35	WH/L-BU	278	Ambient Light Sensor Signal	I	-
6	0.35	BK/YE	1791	Air Temperature Door Control Low Reference	I	-

B14A Transmission Output Shaft Speed Sensor (N8D)



Connector Part Information

Harness Type: Engine

OEM Connector: 1928403110

Service Connector: 19329746

Description: 3-Way F 2.8 Junior Power Timer Series, Sealed (BK)

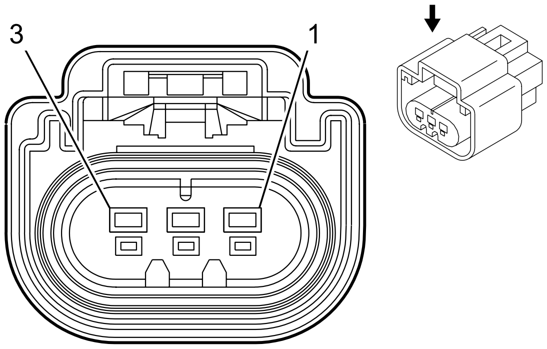
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-35 (VT)	Not Available	Not Available	Not Available	Not Available	Not Available

B14A Transmission Output Shaft Speed Sensor (N8D)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BK/L-GN	822	Vehicle Speed Sensor Low Reference	I	-
2	0.5	VT/WH	821	Vehicle Speed Sensor Signal	I	-
3	0.5	L-BU/RD	1688	5 Volt Reference	I	-

B14A Transmission Output Shaft Speed Sensor (NQ6/NQ7)



Connector Part Information

Harness Type: Engine

OEM Connector: 88988720

Service Connector: 13580873

Description: 3-Way F 150 GT Series, Sealed (GY)

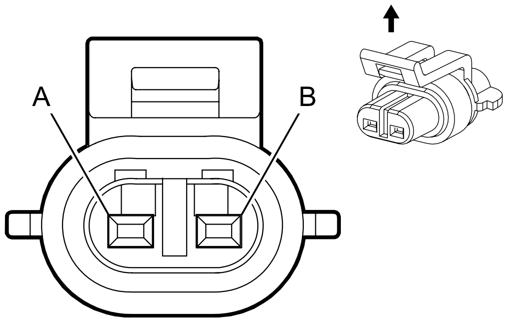
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-2A (GY)	Not Available	Not Available	Not Available	Not Available	Not Available
II	Not Available	J-35616-64B (LT BU)	Not Available	Not Available	Not Available	Not Available	Not Available

B14A Transmission Output Shaft Speed Sensor (NQ6/NQ7)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	L-BU/RD	1688	5 Volt Reference	I	-
2	0.5	VT/WH	821	Vehicle Speed Sensor Signal	I	-
3	0.5	BK/L-GN	822	Vehicle Speed Sensor Low Reference	I	-

B16 Backup Lamp Switch (N8D)



Connector Part Information

Harness Type: Engine

OEM Connector: 90346580

Service Connector: 13580106

Description: 2-Way F 150 Metri Pack Series, Sealed (BK)

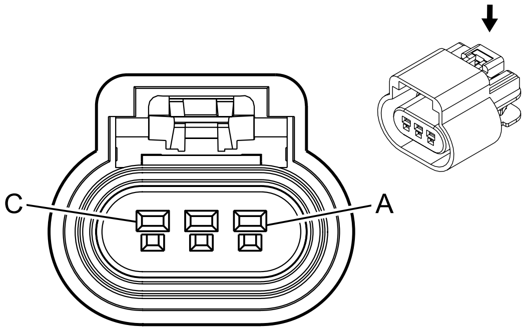
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-14 (GN)	Not Available	Not Available	Not Available	Not Available	Not Available

B16 Backup Lamp Switch (N8D)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	0.5	L-GN/WH	5007	Reverse Switch Signal	I	-
B	0.5	BK/WH	451	Signal Ground	I	-

B18 Battery Current Sensor



Connector Part Information

Harness Type: Body

OEM Connector: 13519047

Service Connector: 15306388

Description: 3-Way F 150 GT Series, Sealed (BK)

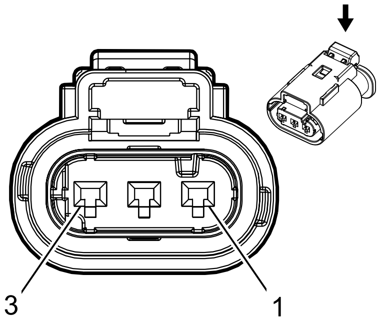
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-2A (GY)	Not Available	Not Available	Not Available	Not Available	Not Available

B18 Battery Current Sensor

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	0.5	L-BU/VT	5076	Current Sensor Supply Voltage	I	-
B	0.5	BK/VT	5077	Current Sensor Low Reference	I	-
C	0.5	WH/YE	5075	Current Sensor Signal	I	-

B19B Brake Booster Vacuum Sensor



Connector Part Information

Harness Type: Chassis

OEM Connector: 13503570

Service Connector: 19299690

Description: 3-Way F 1.2 MLK Series, Sealed (BK)

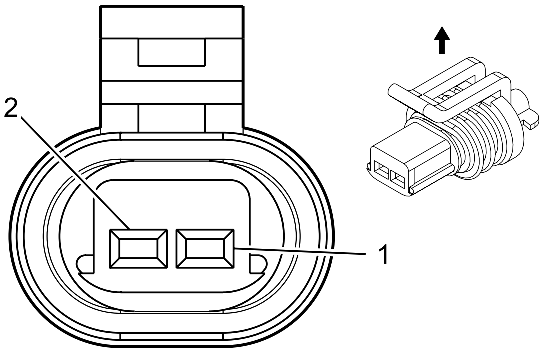
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-64B (LT BU)	Not Available	Not Available	Not Available	Not Available	Not Available

B19B Brake Booster Vacuum Sensor

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	YE/VT	6030	Brake Vacuum Sensor Signal	I	-
2	0.5	BK/YE	6032	Brake Vacuum Sensor Low Reference	I	-
3	0.5	YE/RD	6031	Brake Vacuum Sensor 5 Volt Reference	I	-

B20 Brake Fluid Level Switch



Connector Part Information

Harness Type: Chassis

OEM Connector: 19177506

Service Connector: 88987993

Description: 2-Way F 150 GT Series, Sealed (BK)

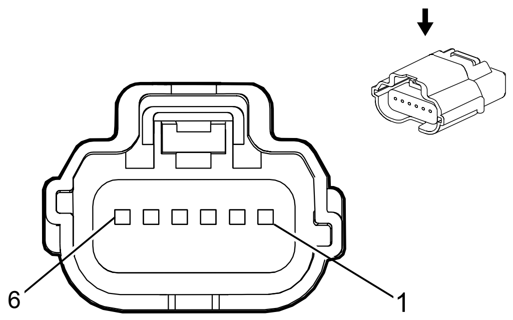
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-2A (GY)	Not Available	Not Available	Not Available	Not Available	Not Available

B20 Brake Fluid Level Switch

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BK/WH	551	Signal Ground	I	-
2	0.5	L-GN/GY	333	Brake Fluid Level Sensor Signal	I	-

B22 Brake Pedal Position Sensor (MYB)



Connector Part Information

Harness Type: Body

OEM Connector: 31404-6810

Service Connector: 19304011

Description: 6-Way F 64 Series, Sealed (NA)

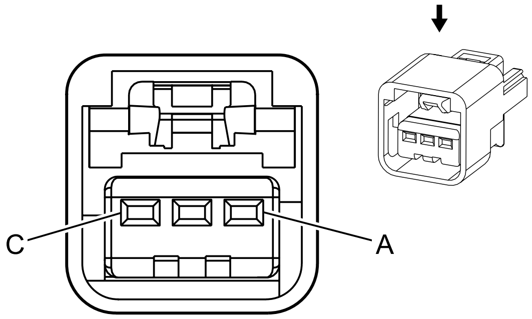
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-64B (LT BU)	Not Available	Not Available	Not Available	Not Available	Not Available

B22 Brake Pedal Position Sensor (MYB)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BK/BN	5360	Brake Apply Sensor Low Reference	I	-
2	0.5	WH	5359	Brake Apply Sensor Supply Voltage	I	-
3	0.5	L-BU/YE	5361	Brake Apply Sensor Signal	I	-
4	0.5	WH/L-GN	5380	Brake Position Sensor Signal	I	-
5	0.5	BK/YE	5382	Brake Position Sensor Low Reference	I	-
6	0.5	WH/RD	5381	Brake Position Sensor 5 Volt Reference	I	-

B22 Brake Pedal Position Sensor (N8D)



Connector Part Information

Harness Type: Body

OEM Connector: 15332132

Service Connector: 88953364

Description: 3-Way F 150 GT Series (BK)

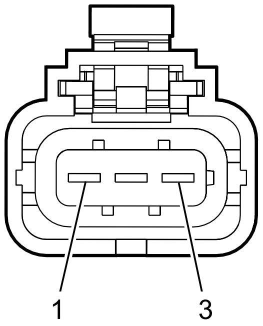
Terminal Part Information

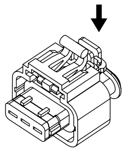
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-2A (GY)	Not Available	Not Available	Not Available	Not Available	Not Available

B22 Brake Pedal Position Sensor (N8D)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	0.5	WH	5359	Brake Apply Sensor Supply Voltage	I	-
B	0.5	L-BU/YE	5361	Brake Apply Sensor Signal	I	-
C	0.5	BK/BN	5360	Brake Apply Sensor Low Reference	I	-

B23A Camshaft Position Sensor - Bank 1 Exhaust (LFX)





Connector Part Information

Harness Type: Engine

OEM Connector: 1928405528

Service Connector: 13384372

Description: 3-Way F 2.8 Series, Sealed (BK with BU Lock)

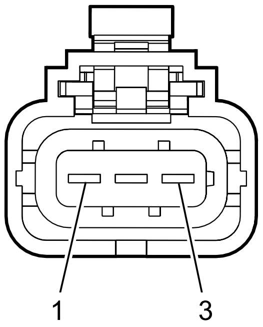
Terminal Part Information

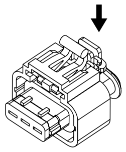
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-64B (LT BU)	Not Available	Not Available	Not Available	Not Available	Not Available

B23A Camshaft Position Sensor - Bank 1 Exhaust (LFX)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BK/GY	5296	Camshaft Position Exhaust Sensor Low Reference (1)	I	-
2	0.5	VT/BK	5273	Camshaft Position Exhaust Sensor (1)	I	-
3	0.5	GY/YE	5297	Camshaft Position Exhaust Sensor Supply Voltage (1)	I	-

B23B Camshaft Position Sensor - Bank 1 Intake (LFX)





Connector Part Information

Harness Type: Engine

OEM Connector: 1928405528

Service Connector: 13384372

Description: 3-Way F 2.8 Series, Sealed (BK with BU Lock)

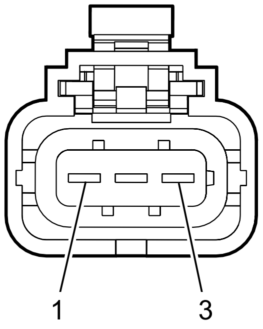
Terminal Part Information

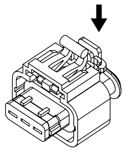
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-64B (LT BU)	Not Available	Not Available	Not Available	Not Available	Not Available

B23B Camshaft Position Sensor - Bank 1 Intake (LFX)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BK/L-GN	5301	Camshaft Position Intake Sensor Low Reference (1)	I	-
2	0.5	YE/VT	5275	Camshaft Position Intake Sensor (1)	I	-
3	0.5	GY/L-BU	5300	Camshaft Position Intake Sensor Supply Voltage (1)	I	-

B23C Camshaft Position Sensor - Bank 2 Exhaust (LFX)





Connector Part Information

Harness Type: Engine

OEM Connector: 1928405528

Service Connector: 13384372

Description: 3-Way F 2.8 Series, Sealed (BK with BU Lock)

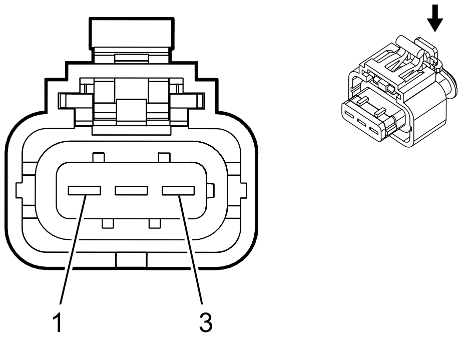
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-64B (LT BU)	Not Available	Not Available	Not Available	Not Available	Not Available

B23C Camshaft Position Sensor - Bank 2 Exhaust (LFX)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BK/BN	5299	Camshaft Position Exhaust Sensor Low Reference (2)	I	-
2	0.5	VT/L-BU	5274	Camshaft Position Exhaust Sensor (2)	I	-
3	0.5	L-GN/BN	5298	Camshaft Position Exhaust Sensor Supply Voltage (2)	I	-

B23D Camshaft Position Sensor - Bank 2 Intake (LFX)



Connector Part Information

Harness Type: Engine

OEM Connector: 1928405528

Service Connector: 13384372

Description: 3-Way F 2.8 Series, Sealed (BK with BU Lock)

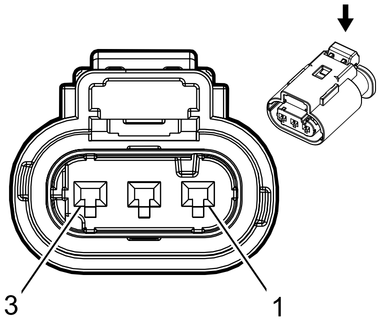
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-64B (LT BU)	Not Available	Not Available	Not Available	Not Available	Not Available

B23D Camshaft Position Sensor - Bank 2 Intake (LFX)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BK/VT	5303	Camshaft Position Intake Sensor Low Reference (2)	I	-
2	0.5	YE	5276	Camshaft Position Intake Sensor (2)	I	-
3	0.5	WH/L-BU	5302	Camshaft Position Intake Sensor Supply Voltage (2)	I	-

B23E Camshaft Position Sensor - Exhaust (LCV)



Connector Part Information

Harness Type: Engine

OEM Connector: 10010341

Service Connector: 19299690

Description: 3-Way F 1.2 MLK Series, Sealed (BK)

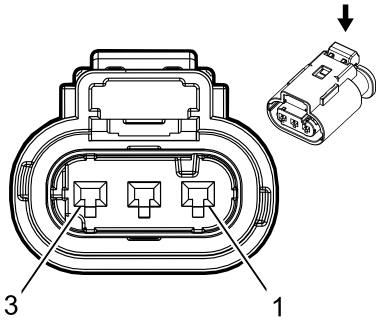
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-16 (LT GN)	Not Available	Not Available	Not Available	Not Available	Not Available

B23E Camshaft Position Sensor - Exhaust (LCV)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	GY/YE	5297	Camshaft Position Exhaust Sensor Supply Voltage (1)	I	-
2	0.5	BK/GY	5296	Camshaft Position Exhaust Sensor Low Reference (1)	I	-
3	0.5	VT/BK	5273	Camshaft Position Exhaust Sensor (1)	I	-

B23F Camshaft Position Sensor - Intake (LCV)



Connector Part Information

Harness Type: Engine

OEM Connector: 13503570

Service Connector: 19299690

Description: 3-Way F 1.2 MLK Series, Sealed (BK)

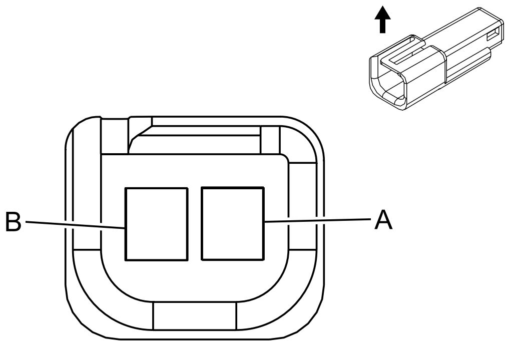
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-16 (LT GN)	Not Available	Not Available	Not Available	Not Available	Not Available

B23F Camshaft Position Sensor - Intake (LCV)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	GY/L-BU	5300	Camshaft Position Intake Sensor Supply Voltage (1)	I	-
2	0.5	BK/L-GN	5301	Camshaft Position Intake Sensor Low Reference (1)	I	-
3	0.5	YE/VT	5275	Camshaft Position Intake Sensor (1)	I	-

B24 Cellular Phone Microphone (UE1)



Connector Part Information

Harness Type: Headliner

OEM Connector: 12047663

Service Connector: 13584278

Description: 2-Way M 150 Metri Pack Series (BK)

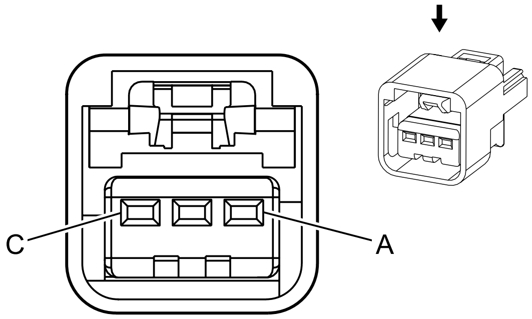
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-3 (GY)	Not Available	Not Available	Not Available	Not Available	Not Available

B24 Cellular Phone Microphone (UE1)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	0.35	BK/BN	654	Cellular Telephone Microphone Low Reference	I	-
B	0.35	L-BU	655	Cellular Telephone Microphone Signal	I	-

B25B Clutch Pedal Position Sensor (N8D)



Connector Part Information

Harness Type: Body

OEM Connector: 15332132

Service Connector: 88953364

Description: 3-Way F 150 GT Series (BK)

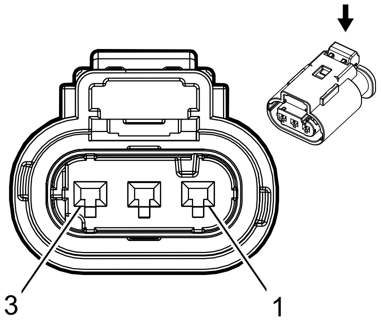
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-2A (GY)	Not Available	Not Available	Not Available	Not Available	Not Available

B25B Clutch Pedal Position Sensor (N8D)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	0.5	GY/RD	6109	Clutch Apply Sensor Voltage Reference	I	-
B	0.5	YE	6111	Clutch Apply Sensor Signal	I	-
C	0.5	BK/GY	6110	Clutch Apply Sensor Low Reference	I	-

B26 Crankshaft Position Sensor (LCV)



Connector Part Information

Harness Type: Engine

OEM Connector: 13503570

Service Connector: 19299690

Description: 3-Way F 1.2 MLK Series, Sealed (BK)

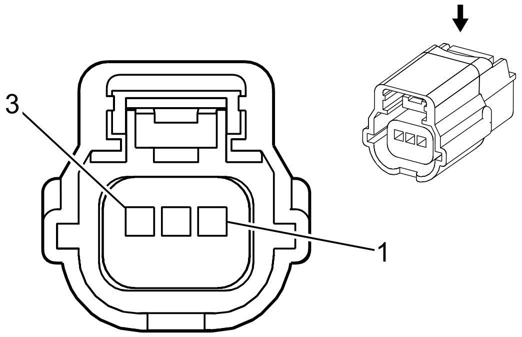
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-16 (LT GN)	Not Available	Not Available	Not Available	Not Available	Not Available

B26 Crankshaft Position Sensor (LCV)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	VT/L-BU	6270	Crankshaft 60X Sensor Voltage	I	-
2	0.5	BK/VT	6272	Crankshaft 60X Sensor Low Reference	I	-
3	0.5	L-GN	6271	Crankshaft 60X Sensor Signal	I	-

B26 Crankshaft Position Sensor (LFX)



Connector Part Information

Harness Type: Engine

OEM Connector: 89047365

Service Connector: 88988337

Description: 3-Way F 0.64 Series, Sealed (BK)

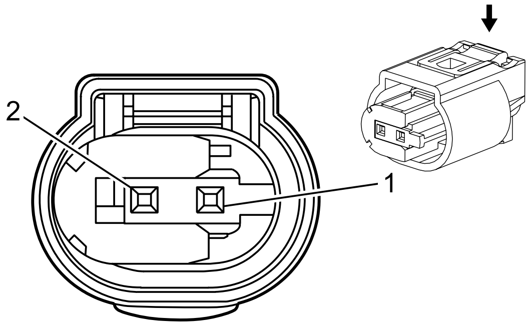
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-64B (LT BU)	Not Available	Not Available	Not Available	Not Available	Not Available

B26 Crankshaft Position Sensor (LFX)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BK/VT	6272	Crankshaft 60X Sensor Low Reference	I	-
2	0.5	L-GN	6271	Crankshaft 60X Sensor Signal	I	-
3	0.5	VT/L-BU	6270	Crankshaft 60X Sensor Voltage	I	-

B34 Engine Coolant Temperature Sensor (LCV)



Connector Part Information

Harness Type: Engine

OEM Connector: 1-967644-1

Service Connector: 13576533

Description: 2-Way F 0.64 Micro Quadlock Series, Sealed (BK with GN Terminal Position Assurance)

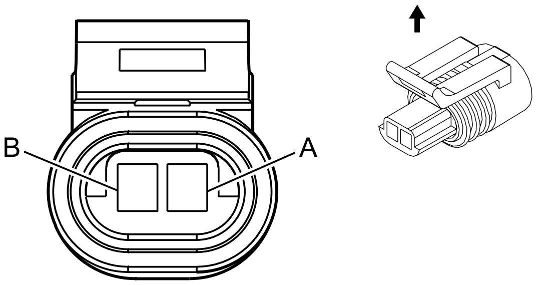
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-64B (LT BU)	Not Available	Not Available	Not Available	Not Available	Not Available

B34 Engine Coolant Temperature Sensor (LCV)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	L-BU	410	Engine Coolant Temperature Sensor Signal	I	-
2	0.5	BK/BN	2761	Coolant Temperature Sensor Low Reference	I	-

B34 Engine Coolant Temperature Sensor (LFX)



Connector Part Information

Harness Type: Engine

OEM Connector: 13584122

Service Connector: 13585857

Description: 2-Way F 150.2 Metri Pack Series, Sealed, Pull To Seat (GY)

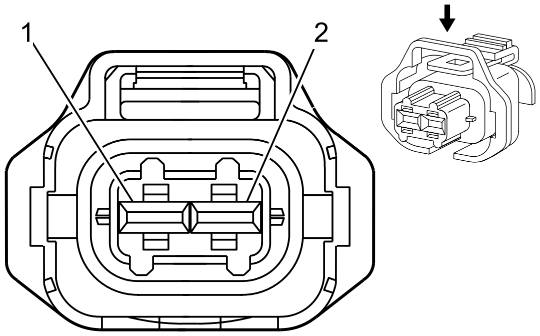
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-64B (LT BU)	Not Available	Not Available	Not Available	Not Available	Not Available

B34 Engine Coolant Temperature Sensor (LFX)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	0.5	BK/BN	2761	Coolant Temperature Sensor Low Reference	I	-
B	0.5	L-BU	410	Engine Coolant Temperature Sensor Signal	I	-

B35 Engine Oil Level Switch (LCV)



Connector Part Information

Harness Type: Engine

OEM Connector: 1928403874

Service Connector: 88988963

Description: 2-Way F Kompakt 2.8 Series, Sealed (BK)

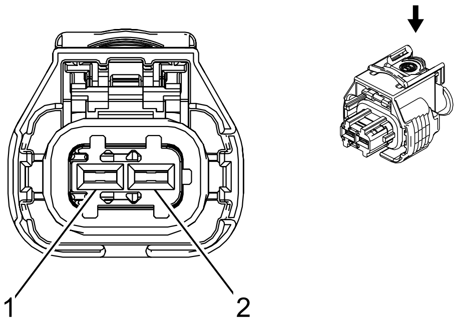
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-35 (VT)	Not Available	Not Available	Not Available	Not Available	Not Available

B35 Engine Oil Level Switch (LCV)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BK/WH	1451	Signal Ground	I	-
2	0.5	BN/L-GN	1174	Oil Level Switch Signal	I	-

B35 Engine Oil Level Switch (LFX)



Connector Part Information

Harness Type: Engine

OEM Connector: 1928405521

Service Connector: 13384371

Description: 2-Way F 2.8 Series, Sealed (BK)

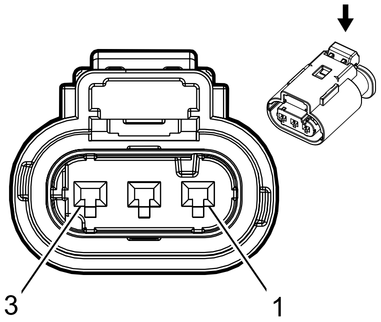
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-64B (LT BU)	Not Available	Not Available	Not Available	Not Available	Not Available

B35 Engine Oil Level Switch (LFX)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BK/WH	1451	Signal Ground	I	-
2	0.5	BN/L-GN	1174	Oil Level Switch Signal	I	-

B37B Engine Oil Pressure Sensor (LCV)



Connector Part Information

Harness Type: Engine

OEM Connector: 10010341

Service Connector: 19299690

Description: 3-Way F 1.2 MLK Series, Sealed (BK)

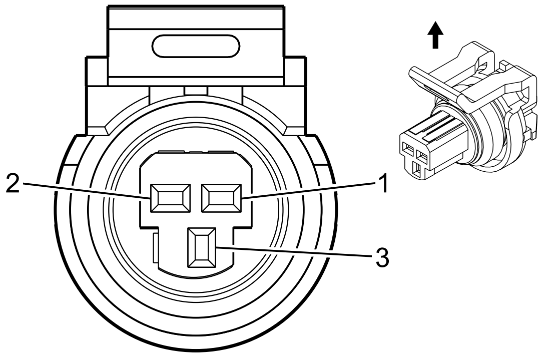
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-16 (LT GN)	Not Available	Not Available	Not Available	Not Available	Not Available

B37B Engine Oil Pressure Sensor (LCV)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	YE/BN	331	Oil Pressure Sensor Signal	I	-
2	0.5	BK/VT	2755	Oil Pressure Sensor Low Reference	I	-
3	0.5	WH/RD	2705	Oil Pressure Sensor 5 Volt Reference	I	-

B37B Engine Oil Pressure Sensor (LFX)



Connector Part Information

Harness Type: Engine

OEM Connector: 13532244

Service Connector: 88988301

Description: 3-Way F 150 GT Series, Sealed (BK)

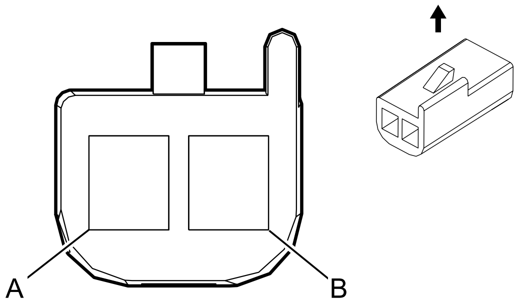
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-14 (GN)	Not Available	Not Available	Not Available	Not Available	Not Available

B37B Engine Oil Pressure Sensor (LFX)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BK/VT	2755	Oil Pressure Sensor Low Reference	I	-
2	0.5	WH/RD	2705	Oil Pressure Sensor 5 Volt Reference	I	-
3	0.5	YE/BN	331	Oil Pressure Sensor Signal	I	-

B39 A/C Evaporator Temperature Sensor



Connector Part Information

Harness Type: HVAC

OEM Connector: 12047662

Service Connector: 12085535

Description: 2-Way F 150 Metri Pack Series (BK)

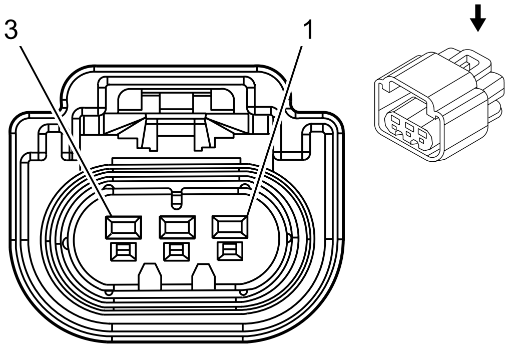
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	13575464	J-35616-14 (GN)	J-38125-12A	15326030	2	E	C

B39 A/C Evaporator Temperature Sensor

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	0.35	GY	6137	EVAP Core Temperature Sensor Signal	I	-
B	0.35	BK/YE	407	Air Temperature Door Control Low Reference	I	-

B47 Fuel Pressure Sensor



Connector Part Information

Harness Type: Chassis

OEM Connector: 19115173

Service Connector: 19168035

Description: 3-Way F 150 GT Series, Sealed (BK)

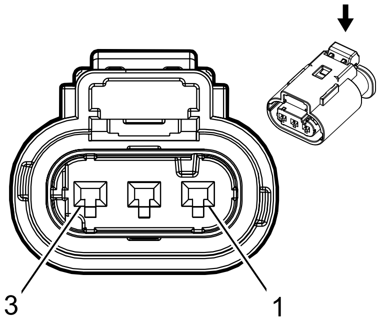
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-2A (GY)	Not Available	Not Available	Not Available	Not Available	Not Available

B47 Fuel Pressure Sensor

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	L-BU/WH	7446	Fuel Line Pressure Sensor Signal	I	-
2	0.5	BK/YE	7447	Fuel Line Pressure Sensor Low Reference	I	-
3	0.5	BN/RD	7445	Fuel Line Pressure Sensor 5V Reference	I	-

B47B Fuel Rail Pressure Sensor (LCV)



Connector Part Information

Harness Type: Fuel Rail

OEM Connector: 13503570

Service Connector: 19299690

Description: 3-Way F 1.2 MLK Series, Sealed (BK)

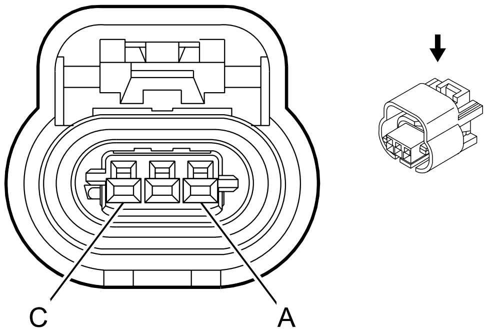
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available

B47B Fuel Rail Pressure Sensor (LCV)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BK/GN	2919	Fuel Rail Pressure Sensor Low Reference	I	-
2	0.5	BU/WH	2918	Fuel Rail Pressure Sensor Signal	I	-
3	0.5	BN/RD	2917	Fuel Rail Pressure Sensor (5) Volt Reference	I	-

B47B Fuel Rail Pressure Sensor (LFX)



Connector Part Information

Harness Type: Bank 2 Fuel Rail

OEM Connector: 15336000

Service Connector: Service by Harness - See Part Catalog

Description: 3-Way F 150 GT Series, Sealed (BK)

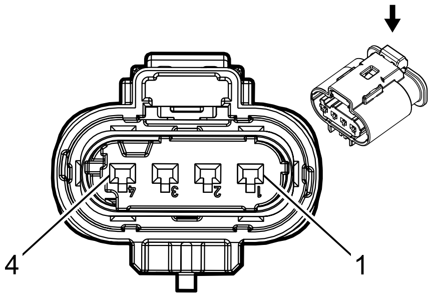
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available

B47B Fuel Rail Pressure Sensor (LFX)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	0.5	BN/RD	2917	Fuel Rail Pressure Sensor (5) Volt Reference	I	-
B	0.5	BU/WH	2918	Fuel Rail Pressure Sensor Signal	I	-
C	0.5	BK/GN	2919	Fuel Rail Pressure Sensor Low Reference	I	-

B52A Heated Oxygen Sensor 1 (LCV)



Connector Part Information

Harness Type: Engine

OEM Connector: 10010346

Service Connector: 19299691

Description: 4-Way F 1.2 MLK Series, Sealed (BK)

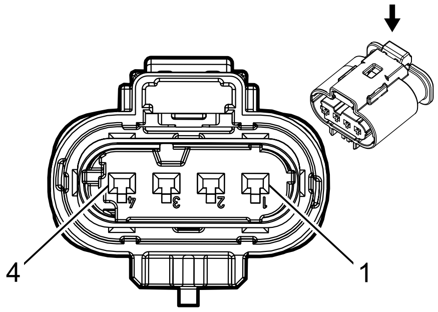
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-16 (LT GN)	Not Available	Not Available	Not Available	Not Available	Not Available

B52A Heated Oxygen Sensor 1 (LCV)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	GY/WH	3113	Heated Oxygen Sensor Heater Low Control Bank 1 Sensor (1)	I	-
2	0.5	VT/L-BU	5293	Powertrain Main Relay Fused Supply (4)	I	-
3	0.5	WH/BK	3111	Heated Oxygen Sensor Low Signal Bank 1 Sensor (1)	I	-
4	0.5	VT/GY	3110	Heated Oxygen Sensor High Signal Bank 1 Sensor (1)	I	-

B52B Heated Oxygen Sensor 2 (LCV)



Connector Part Information

Harness Type: Engine

OEM Connector: 10010347

Service Connector: 19299692

Description: 4-Way F 1.2 MLK Series, Sealed (L-GY)

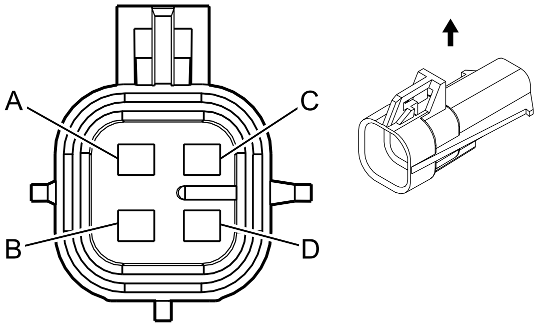
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-16 (LT GN)	Not Available	Not Available	Not Available	Not Available	Not Available

B52B Heated Oxygen Sensor 2 (LCV)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	GY/WH	3122	Heated Oxygen Sensor Heater Low Control Bank 1 Sensor (2)	I	-
2	0.5	VT/L-BU	5294	Powertrain Main Relay Fused Supply (5)	I	-
3	0.5	WH/YE	3121	Heated Oxygen Sensor Low Signal Bank 1 Sensor (2)	I	-
4	0.5	VT/L-BU	3120	Heated Oxygen Sensor High Signal Bank 1 Sensor (2)	I	-

B52C Heated Oxygen Sensor - Bank 1 Sensor 1 (LFX)



Connector Part Information

Harness Type: Engine

OEM Connector: 12160825

Service Connector: 15305801

Description: 4-Way M 150 Metri Pack Series, Sealed (BK)

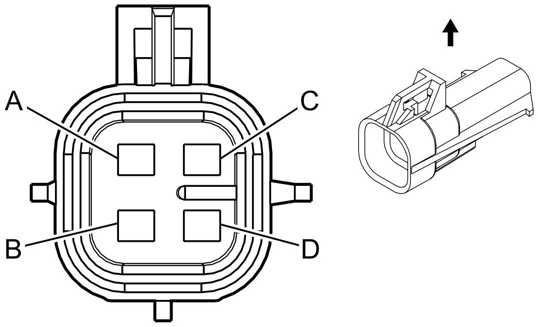
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-64B (LT BU)	Not Available	Not Available	Not Available	Not Available	Not Available

B52C Heated Oxygen Sensor - Bank 1 Sensor 1 (LFX)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	0.5	WH/BK	3111	Heated Oxygen Sensor Low Signal Bank 1 Sensor (1)	I	-
B	0.5	VT/GY	3110	Heated Oxygen Sensor High Signal Bank 1 Sensor (1)	I	-
C	0.5	GY/WH	3113	Heated Oxygen Sensor Heater Low Control Bank 1 Sensor (1)	I	-
D	0.5	VT/L-BU	5293	Powertrain Main Relay Fused Supply (4)	I	-

B52D Heated Oxygen Sensor - Bank 1 Sensor 2 (LFX)



Connector Part Information

Harness Type: Engine

OEM Connector: 12160825

Service Connector: 15305801

Description: 4-Way M 150 Metri Pack Series, Sealed (BK)

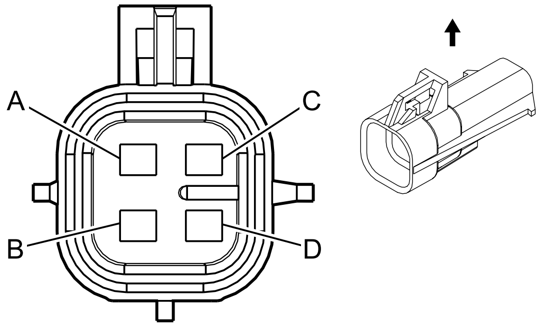
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-64B (LT BU)	Not Available	Not Available	Not Available	Not Available	Not Available

B52D Heated Oxygen Sensor - Bank 1 Sensor 2 (LFX)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	0.5	WH/YE	3121	Heated Oxygen Sensor Low Signal Bank 1 Sensor (2)	I	-
B	0.5	VT/L-BU	3120	Heated Oxygen Sensor High Signal Bank 1 Sensor (2)	I	-
C	0.5	GY/WH	3122	Heated Oxygen Sensor Heater Low Control Bank 1 Sensor (2)	I	-
D	0.5	VT/L-BU	5294	Powertrain Main Relay Fused Supply (5)	I	-

B52E Heated Oxygen Sensor - Bank 2 Sensor 1 (LFX)



Connector Part Information

Harness Type: Engine

OEM Connector: 12160825

Service Connector: 15305801

Description: 4-Way M 150 Metri Pack Series, Sealed (BK)

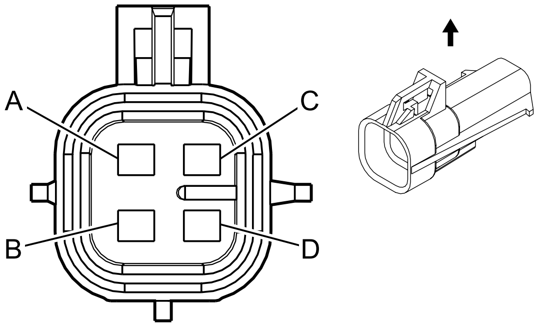
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-64B (LT BU)	Not Available	Not Available	Not Available	Not Available	Not Available

B52E Heated Oxygen Sensor - Bank 2 Sensor 1 (LFX)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	0.5	YE/WH	3211	Heated Oxygen Sensor Low Signal Bank 2 Sensor (1)	I	-
B	0.5	VT/WH	3210	Heated Oxygen Sensor High Signal Bank 2 Sensor (1)	I	-
C	0.5	L-GN/YE	3212	Heated Oxygen Sensor Heater Low Control Bank 2 Sensor (1)	I	-
D	0.5	VT/L-BU	5293	Powertrain Main Relay Fused Supply (4)	I	-

B52F Heated Oxygen Sensor - Bank 2 Sensor 2 (LFX)



Connector Part Information

Harness Type: Engine

OEM Connector: 12160825

Service Connector: 15305801

Description: 4-Way M 150 Metri Pack Series, Sealed (BK)

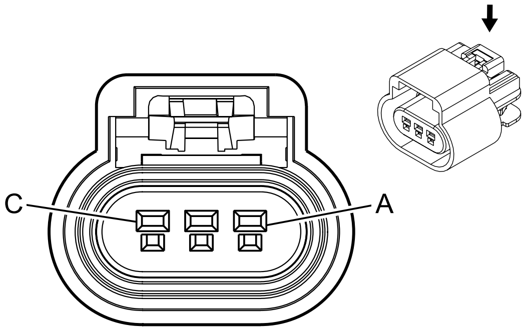
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-64B (LT BU)	Not Available	Not Available	Not Available	Not Available	Not Available

B52F Heated Oxygen Sensor - Bank 2 Sensor 2 (LFX)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	0.5	YE/L-BU	3221	Heated Oxygen Sensor Low Signal Bank 2 Sensor (2)	I	-
B	0.5	VT/L-GN	3220	Heated Oxygen Sensor High Signal Bank 2 Sensor (2)	I	-
C	0.5	WH/BN	3223	Heated Oxygen Sensor Heater Low Control Bank 2 Sensor (2)	I	-
D	0.5	VT/L-BU	5294	Powertrain Main Relay Fused Supply (5)	I	-

B55 Hood Ajar Switch



Connector Part Information

Harness Type: Forward Lamp

OEM Connector: 13519047

Service Connector: 15306388

Description: 3-Way F 150 GT Series, Sealed (BK)

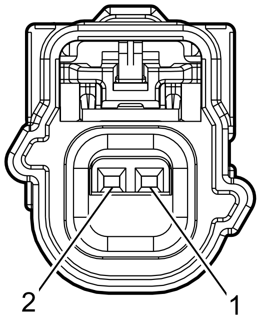
Terminal Part Information

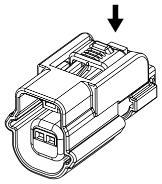
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-2A (GY)	Not Available	Not Available	Not Available	Not Available	Not Available

B55 Hood Ajar Switch

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	-	-	-	Not Occupied	-	-
B	0.5	BN/L-GN	109	Hood Ajar Switch Signal	I	-
C	0.75	BK/WH	1251	Signal Ground	I	-

B59L Front Impact Sensor - Left





Connector Part Information

Harness Type: Forward Lamp

OEM Connector: 54390241

Service Connector: 19329742

Description: 2-Way F 0.64 Series, Sealed

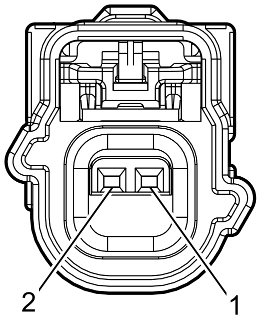
Terminal Part Information

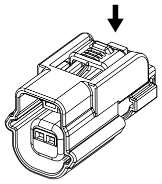
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-64B (LT BU)	Not Available	Not Available	Not Available	Not Available	Not Available

B59L Front Impact Sensor - Left

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	OG/YE	354	Left Front Discriminating Sensor Signal	I	-
2	0.5	BK/OG	5045	Left Front Discriminating Sensor Low Reference	I	-

B59R Front Impact Sensor - Right





Connector Part Information

Harness Type: Forward Lamp

OEM Connector: 54390241

Service Connector: 19329742

Description: 2-Way F 0.64 Series, Sealed

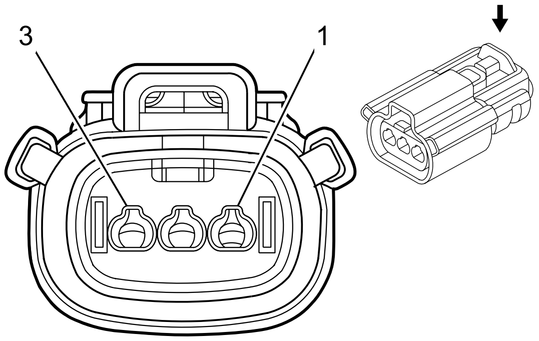
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-64B (LT BU)	Not Available	Not Available	Not Available	Not Available	Not Available

B59R Front Impact Sensor - Right

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	OG/L-GN	1409	Right Front Discriminating Sensor Signal	I	-
2	0.5	BK/OG	5600	Right Front Discriminating Sensor Low Reference	I	-

B61P Seat Belt Tension Sensor - Passenger (AL0)



Connector Part Information

Harness Type: Passenger Seat Cushion

OEM Connector: 33471-0306

Service Connector: Service by Harness – See Part Catalog

Description: 3-Way F 1.5 Series, Sealed (BK)

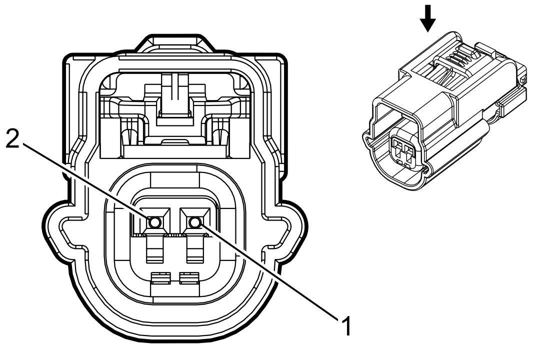
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available

B61P Seat Belt Tension Sensor - Passenger (AL0)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	L-BU/RD	5612	Passenger Seat Belt Tension Sensor Voltage Reference	I	-
2	0.35	BK/WH	2251	Signal Ground	I	-
3	0.35	VT/OG	5611	Passenger Seat Belt Tension Sensor Signal	I	-

B63LF Side Impact Sensor - Left Front



Connector Part Information

Harness Type: Driver Door

OEM Connector: 54390240

Service Connector: Service by Harness - See Part Catalog

Description: 2-Way F 0.64 Series, Sealed (L-GY)

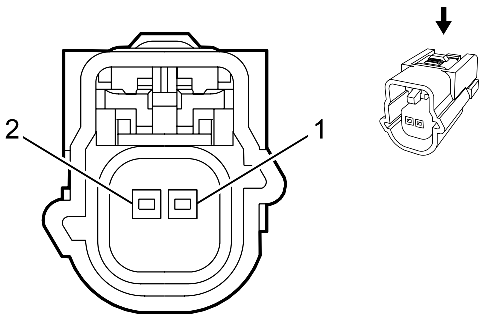
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-64B (L-BU)	Not Available	Not Available	Not Available	Not Available	Not Available

B63LF Side Impact Sensor - Left Front

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	OG/L-GN	2132	Left Front Side Impact Sensing Module Signal	I	-
2	0.35	BK/OG	6628	Left Front Side Impact Sensing Module Low Reference	I	-

B63LR Side Impact Sensor - Left Rear



Connector Part Information

Harness Type: Body

OEM Connector: 54390242

Service Connector: 13585852

Description: 2-Way F 0.64 Series, Sealed (D-GY)

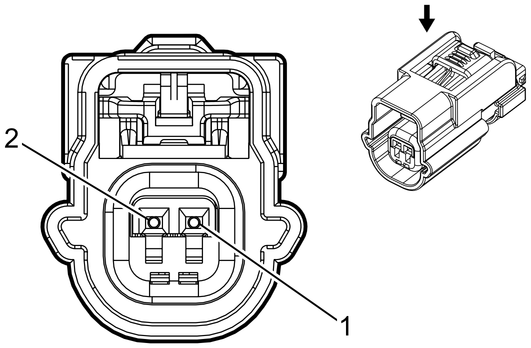
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-64B (LT BU)	Not Available	Not Available	Not Available	Not Available	Not Available

B63LR Side Impact Sensor - Left Rear

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	OG/L-BU	6620	Left Middle Side Impact Sensing Module Signal	I	-
2	0.35	BK/OG	6621	Left Middle Side Impact Sensing Module Low Reference	I	-

B63RF Side Impact Sensor - Right Front



Connector Part Information

Harness Type: Passenger Door

OEM Connector: 54390240

Service Connector: Service by Harness - See Part Catalog

Description: 2-Way F 0.64 Series, Sealed (L-GY)

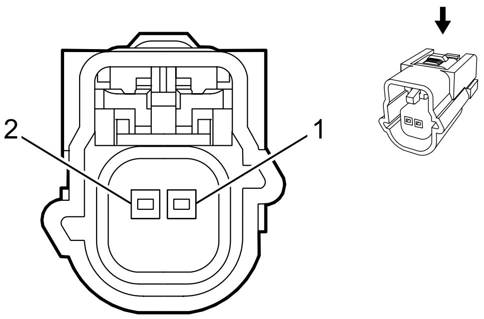
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-64B (L-BU)	Not Available	Not Available	Not Available	Not Available	Not Available

B63RF Side Impact Sensor - Right Front

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	BN/OG	2134	Right Front Side Impact Sensing Module Signal	I	-
2	0.35	BK/OG	6629	Right Front Side Impact Sensing Module Low Reference	I	-

B63RR Side Impact Sensor - Right Rear



Connector Part Information

Harness Type: Body

OEM Connector: 54390242

Service Connector: 13585852

Description: 2-Way F 0.64 Series, Sealed (D-GY)

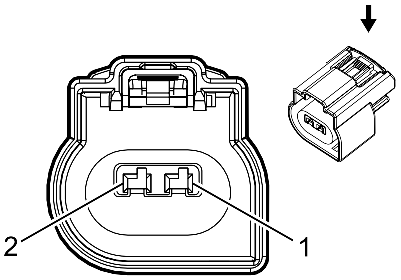
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-64B (LT BU)	Not Available	Not Available	Not Available	Not Available	Not Available

B63RR Side Impact Sensor - Right Rear

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	OG/VT	6624	Right Middle Side Impact Sensing Module Signal	I	-
2	0.35	BK/OG	6625	Right Middle Side Impact Sensing Module Low Reference	I	-

B68A Knock Sensor 1 (LCV)



Connector Part Information

Harness Type: Engine

OEM Connector: 34752-0204

Service Connector: 19301207

Description: 2-Way F 150 MX Series, Sealed (BK)

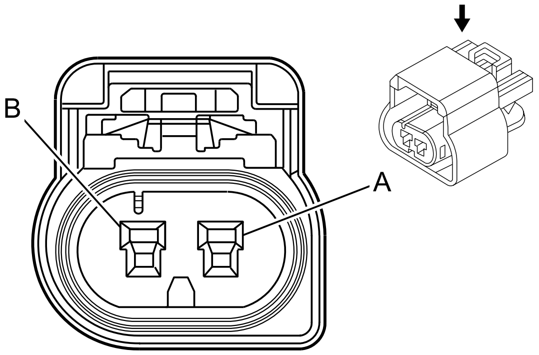
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-2A (GY)	Not Available	Not Available	Not Available	Not Available	Not Available

B68A Knock Sensor 1 (LCV)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	VT/GY	496	Knock Sensor Signal (1)	I	-
2	0.5	BK/YE	1716	Knock Sensor Low Reference (1)	I	-

B68A Knock Sensor 1 (LFX)



Connector Part Information

Harness Type: Engine

OEM Connector: 15374222

Service Connector: 88953268

Description: 2-Way F 150 GT Series, Sealed (NA)

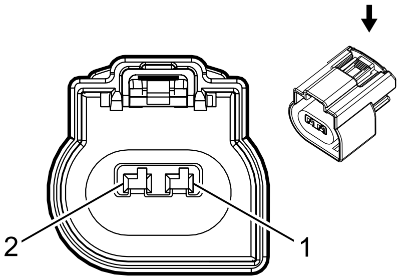
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-64B (LT BU)	Not Available	Not Available	Not Available	Not Available	Not Available

B68A Knock Sensor 1 (LFX)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	0.5	VT/GY	496	Knock Sensor Signal (1)	I	-
B	0.5	BK/YE	1716	Knock Sensor Low Reference (1)	I	-

B68B Knock Sensor 2 (LCV)



Connector Part Information

Harness Type: Engine

OEM Connector: 34752-0204

Service Connector: 19301207

Description: 2-Way F 150 MX Series, Sealed (BK)

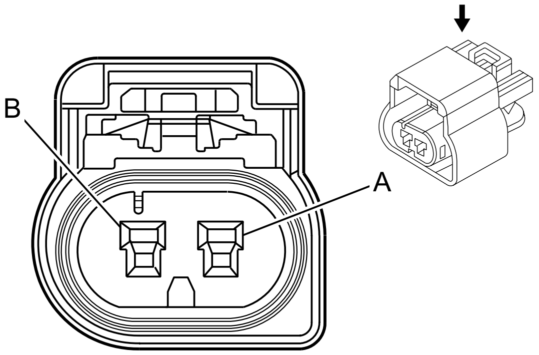
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-2A (GY)	Not Available	Not Available	Not Available	Not Available	Not Available

B68B Knock Sensor 2 (LCV)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	WH/GY	1876	Knock Sensor Signal (2)	I	-
2	0.5	BK/GY	2303	Knock Sensor Low Reference (2)	I	-

B68B Knock Sensor 2 (LFX)



Connector Part Information

Harness Type: Engine

OEM Connector: 15374222

Service Connector: 88953268

Description: 2-Way F 150 GT Series, Sealed (NA)

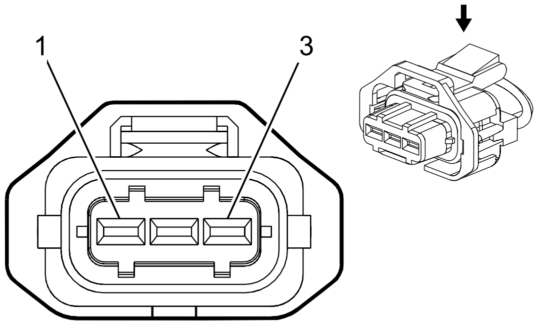
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-64B (LT BU)	Not Available	Not Available	Not Available	Not Available	Not Available

B68B Knock Sensor 2 (LFX)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	0.5	WH/GY	1876	Knock Sensor Signal (2)	I	-
B	0.5	BK/GY	2303	Knock Sensor Low Reference (2)	I	-

B74 Manifold Absolute Pressure Sensor



Connector Part Information

Harness Type: Engine

OEM Connector: 13145408

Service Connector: 13585850

Description: 3-Way F 2.8 Series, Sealed (BK)

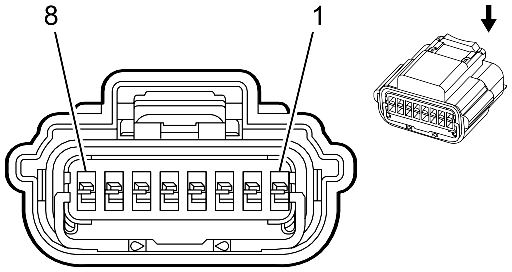
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-35 (VT)	Not Available	Not Available	Not Available	Not Available	Not Available
II	Not Available	J-35616-64B (LT BU)	Not Available	Not Available	Not Available	Not Available	Not Available

B74 Manifold Absolute Pressure Sensor

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	GY/RD	2704	Manifold Absolute Pressure Sensor 5 Volt Reference	I	-
2	0.5	BK/L-GN	469	Manifold Absolute Pressure Sensor Low Reference	I	-
3	0.5	L-GN/WH	432	Manifold Absolute Pressure Sensor Signal	I	-

B75C Multifunction Intake Air Sensor



Connector Part Information

Harness Type: Engine

OEM Connector: ATSSPB-C08C-1AK

Service Connector: 13583440

Description: 8-Way F 0.64 Series, Sealed (BK)

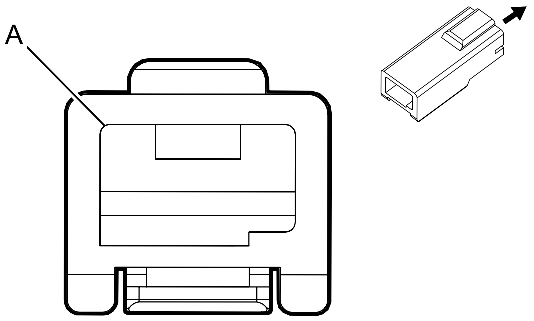
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-64B (LT BU)	Not Available	Not Available	Not Available	Not Available	Not Available
II	Not Available	J-35616-64B (L-BU)	Not Available	Not Available	Not Available	Not Available	Not Available

B75C Multifunction Intake Air Sensor

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	WH/L-BU	6289	Induction Air Temperature Sensor Signal	I	-
2	0.5	WH/RD	3201	Throttle Inlet Absolute Pressure Sensor 5V Reference	I	-
3	0.5 0.5	BK/BN BK/VT	2761 2760	Coolant Temperature Sensor Low Reference Intake Air Temperature Sensor Low Reference	I	LCV LFX
4	0.5	YE/WH	3200	Throttle Inlet Absolute Pressure Sensor Signal	I	-
5	0.5	VT/L-BU	5294	Powertrain Main Relay Fused Supply (5)	I	-
6	0.5	L-GN/WH	492	Mass Air Flow Sensor Signal	I	-
7	0.5	BK/WH	1451	Signal Ground	I	-
8	0.5 0.5	BN/GY GY/L-BU	4008 7564	Humidity Sensor Signal Humidity Sensor Signal	I	LCV LFX

B80 Park Brake Switch



Connector Part Information

Harness Type: Body

OEM Connector: 13705266

Service Connector: 19301743

Description: 1-Way F 630 Metri Pack Series (BK)

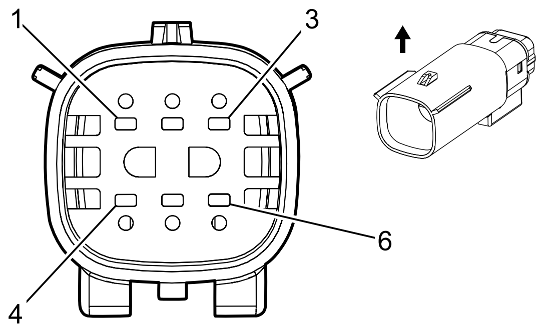
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-42 (RD)	Not Available	Not Available	Not Available	Not Available	Not Available

B80 Park Brake Switch

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	L-BU/VT	1134	Park Brake Switch Signal	I	-

B87 Rearview Camera (UVC)



Connector Part Information

Harness Type: License Lamp

OEM Connector: 13503535

Service Connector: Service by Harness - See Part Catalog

Description: 6-Way M 150 MX Series, Sealed (BK)

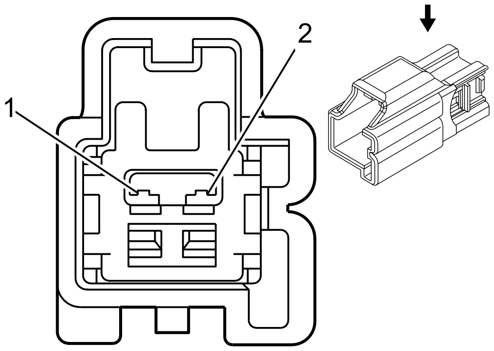
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-64B (L-BU)	Not Available	Not Available	Not Available	Not Available	Not Available

B87 Rearview Camera (UVC)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	L-GN/WH	24	Backup Lamp Supply Voltage	I	-
2	0.5	GY/YE	6972	Camera Signal #2 +	I	-
3	0.5	VT/L-GN	1739	Run/Crank Ignition 1 Voltage	I	-
4	0.5	L-GN	6974	Camera Drain Wire	I	-
5	0.5	BK/WH	751	Signal Ground	I	-
6	0.5	WH/L-BU	6973	Camera Signal #2	I	-

B88D Seat Belt Switch - Driver



Connector Part Information

Harness Type: Driver Seat Cushion

OEM Connector: 7282-6443-40

Service Connector: 88988503

Description: 2-Way M 1.5 Series (L-GY)

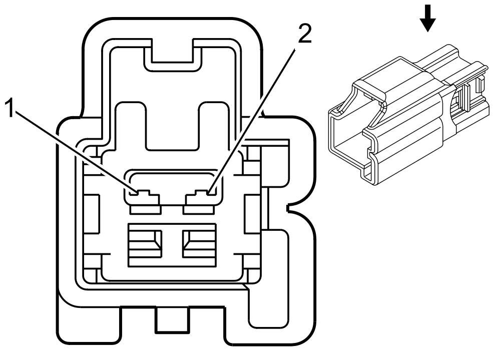
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	13575816	J-35616-3 (GY)	J-38125-553	7114-4100-08	9	E	C

B88D Seat Belt Switch - Driver

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	BK/OG	1363	Driver Seat Belt Switch Low Reference	I	-
2	0.35	OG/BN	238	Driver Seat Belt Switch Signal	I	-

B88P Seat Belt Switch - Passenger



Connector Part Information

Harness Type: Passenger Seat Cushion

OEM Connector: 7282-6443-40

Service Connector: 88988503

Description: 2-Way M 1.5 Series (L-GY)

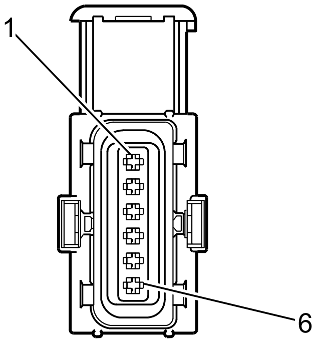
Terminal Part Information

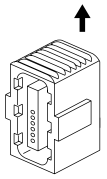
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	13575816	J-35616-3 (GY)	J-38125-553	7114-4100-08	9	E	C

B88P Seat Belt Switch - Passenger

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	BK/OG	1361	Passenger Seat Belt Switch Low Reference	I	-
2	0.35	OG/VT	1362	Passenger Seat Belt Switch Signal	I	-

B107 Accelerator Pedal Position Sensor





Connector Part Information

Harness Type: Body

OEM Connector: 6-929264-1

Service Connector: 13580116

Description: 6-Way F 1.2 Micro Timer Series, Sealed (BK)

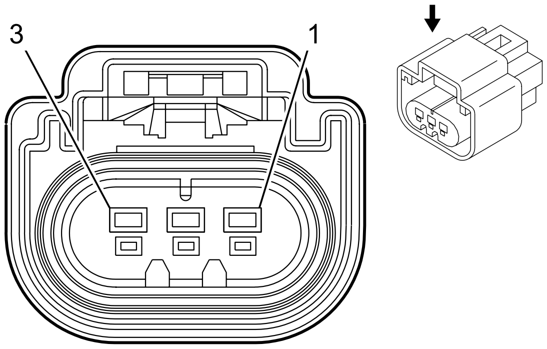
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-14 (GN)	Not Available	Not Available	Not Available	Not Available	Not Available

B107 Accelerator Pedal Position Sensor

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BN/RD	1274	Accelerator Pedal Position 5 Volt Reference (2)	I	-
2	0.5	WH/RD	1164	Accelerator Pedal Position 5 Volt Reference (1)	I	-
3	0.5	YE/WH	1161	Accelerator Pedal Position Signal (1)	I	-
4	0.5	BK/L-BU	1271	Accelerator Pedal Position Low Reference (1)	I	-
5	0.5	BK/VT	1272	Accelerator Pedal Position Low Reference (2)	I	-
6	0.5	L-GN/WH	1162	Accelerator Pedal Position Signal (2)	I	-

B150 Fuel Tank Pressure Sensor



Connector Part Information

Harness Type: Chassis

OEM Connector: 88988720

Service Connector: 13580873

Description: 3-Way F 150 GT Series, Sealed (GY)

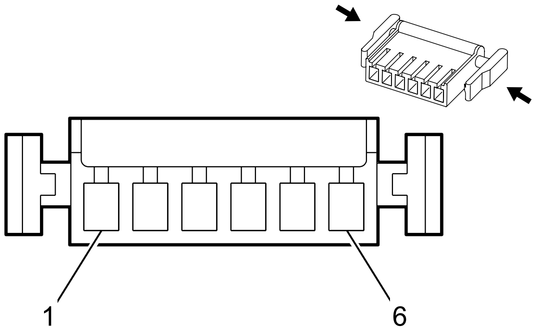
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-64B (LT BU)	Not Available	Not Available	Not Available	Not Available	Not Available

B150 Fuel Tank Pressure Sensor

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	L-BU/WH	890	Fuel Tank Pressure Sensor Signal	I	-
2	0.5	BK/L-GN	6281	Fuel Level Sensor Low Reference	I	-
3	0.5	YE/RD	2709	Fuel Tank Pressure Sensor 5 Volt Reference	I	-

B160 Windshield Temperature and Inside Moisture Sensor (C68)



Connector Part Information

Harness Type: Windshield Sensor

OEM Connector: 13726957

Service Connector: Service by Harness - See Part Catalog

Description: 6-Way F 0.64 Micro Quadlock Series (BK)

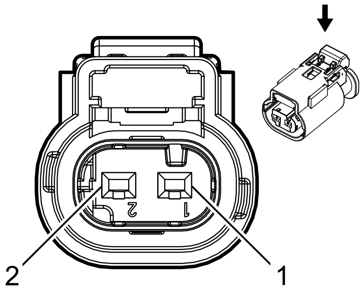
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-64B (L-BU)	Not Available	Not Available	Not Available	Not Available	Not Available

B160 Windshield Temperature and Inside Moisture Sensor (C68)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	RD	597	5 Volt Reference	I	-
2	0.35	D-BU	7564	Humidity Sensor Signal	I	-
3	0.35	BK	7566	Humidity/Windscreen Temp Sensor Low Reference	I	-
4	0.35	L-GN	7565	Windscreen Temp Sensor Signal	I	-
5	0.35	YE	3197	Humidity Temperature Sensor Signal	I	-
6	-	-	-	Not Occupied	-	-

B203 Engine Coolant Radiator Temperature Sensor



Connector Part Information

Harness Type: Forward Lamp Extension

OEM Connector: 10010337

Service Connector: Service by Harness - See Part Catalog

Description: 2-Way F 1.2 MLK Series, Sealed (BK)

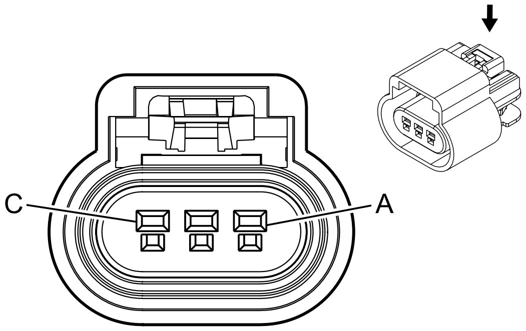
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-16 (LT GN)	Not Available	Not Available	Not Available	Not Available	Not Available

B203 Engine Coolant Radiator Temperature Sensor

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	YE/BK	3000	Coolant Temperature Sensor #2 Signal	I	-
2	0.5	BK/L-BU	6813	Coolant Temperature Sensor #2 Low Reference	I	-

B227 Gear Position Sensor (NQ6)



Connector Part Information

Harness Type: Engine

OEM Connector: 15326808

Service Connector: 13580871

Description: 3-Way F 150 GT Series, Sealed (BK)

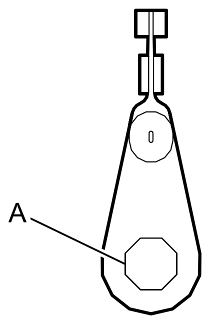
Terminal Part Information

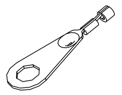
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-2A (GY)	Not Available	Not Available	Not Available	Not Available	Not Available

B227 Gear Position Sensor (NQ6)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	0.5	YE/BK	7478	Rotary Position Sensor Return	I	-
B	0.5	WH/RD	7477	Rotary Position Sensor Supply 5V	I	-
C	0.5	WH/L-GN	7479	Rotary Position Sensor Signal	I	-

C1 Battery X2





Connector Part Information

Harness Type: Body

OEM Connector: 13268280

Service Connector: Service by Cable Assembly - See Part Catalog

Description: 1-Way Ring Terminal

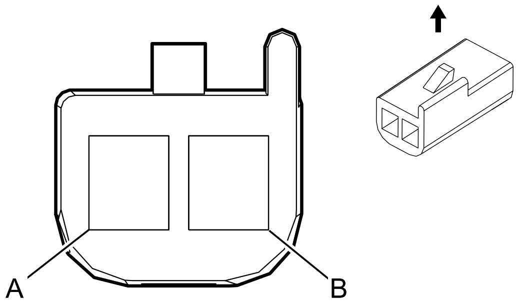
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available

C1 Battery X2

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BK	1650	Ground	I	-

C3 Telematics Communication Interface Control Module Battery (UE1)



Connector Part Information

Harness Type: Body

OEM Connector: 12047662

Service Connector: 12085535

Description: 2-Way F 150 Metri Pack Series (BK)

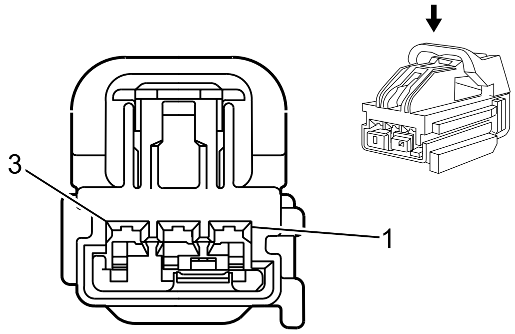
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-14 (GN)	Not Available	Not Available	Not Available	Not Available	Not Available

C3 Telematics Communication Interface Control Module Battery (UE1)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	0.5	YE/VT	5235	Battery Backup Supply Voltage	I	-
B	0.5	BK/VT	5167	Battery Backup Low Reference	I	-

E6 Center High Mounted Stop Lamp



Connector Part Information

Harness Type: Body

OEM Connector: 7283-3440-40

Service Connector: 19149536

Description: 3-Way F 1.5 Kaizen Series (L-GY)

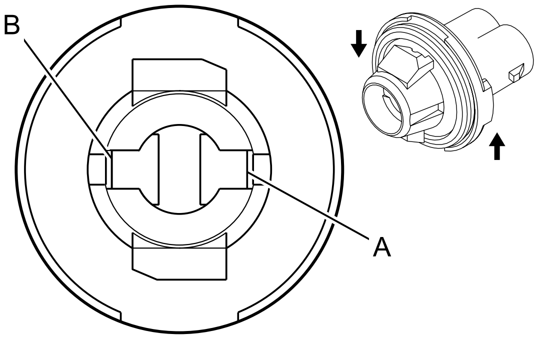
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-2A (GY)	Not Available	Not Available	Not Available	Not Available	Not Available

E6 Center High Mounted Stop Lamp

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	WH/VT	1430	Exterior Courtesy Lamp Supply Voltage	I	-
2	0.35	VT/GY	1054	Stop Lamp Supply Voltage	I	-
3	0.75	BK	3150	Ground	I	-

E7L License Plate Lamp - Left



Connector Part Information

Harness Type: License Lamp

OEM Connector: 15324946

Service Connector: Service by Harness - See Part Catalog

Description: 2-Way F Lamp Socket Wedge Base W2 (D-GY)

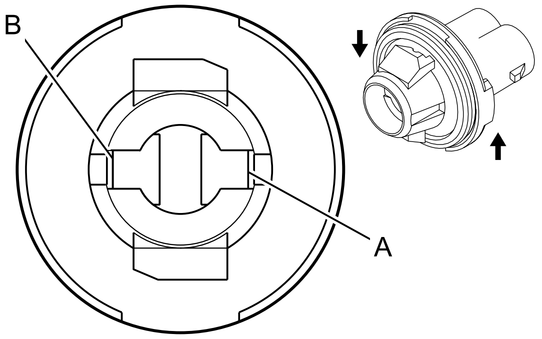
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-64B (L-BU)	Not Available	Not Available	Not Available	Not Available	Not Available

E7L License Plate Lamp - Left

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	L-GN/YE	6846	Rear License Lamp Supply Voltage	I	-
2	0.5	BK	750	Ground	I	-

E7R License Plate Lamp - Right



Connector Part Information

Harness Type: License Lamp

OEM Connector: 15324946

Service Connector: Service by Harness - See Part Catalog

Description: 2-Way F Lamp Socket Wedge Base W2 (D-GY)

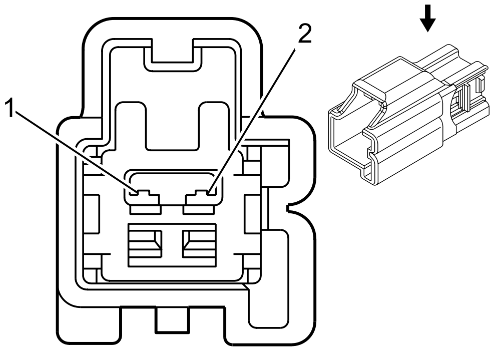
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-64B (L-BU)	Not Available	Not Available	Not Available	Not Available	Not Available

E7R License Plate Lamp - Right

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	L-GN/YE	6846	Rear License Lamp Supply Voltage	I	-
2	0.5	BK	750	Ground	I	-

E14A Seat Heating Element - Driver Back (KA1)



Connector Part Information

Harness Type: Driver Seat Back

OEM Connector: 7282-6443-40

Service Connector: 88988503

Description:2-Way M 1.5 Series (L-GY)

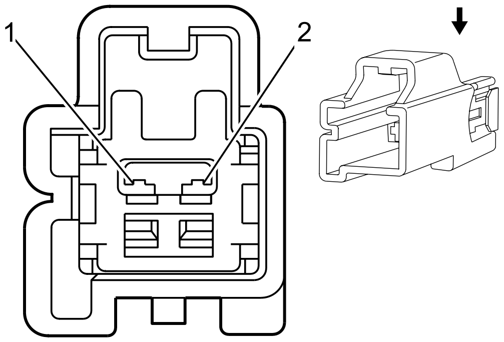
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	13575818	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available

E14A Seat Heating Element - Driver Back (KA1)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	BN	2432	Driver Heated Back Element Supply Voltage	I	-
2	0.75	BK	3750	Ground	I	-

E14B Seat Heating Element - Driver Cushion (KA1)



Connector Part Information

Harness Type: Driver Seat Cushion

OEM Connector: 7282-6443-40

Service Connector: 19167746

Description: 2-Way M 1.5 Series (GN)

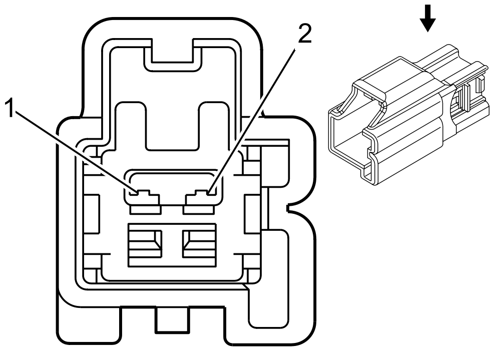
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	13575818	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available

E14B Seat Heating Element - Driver Cushion (KA1)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	BN/L-BU	2479	Driver Heated Seat Element Supply Voltage	I	-
2	0.75	BK	3750	Ground	I	-

E14C Seat Heating Element - Passenger Back (KA1)



Connector Part Information

Harness Type: Passenger Seat Back

OEM Connector: 7282-6443-40

Service Connector: 88988503

Description:2-Way M 1.5 Series (L-GY)

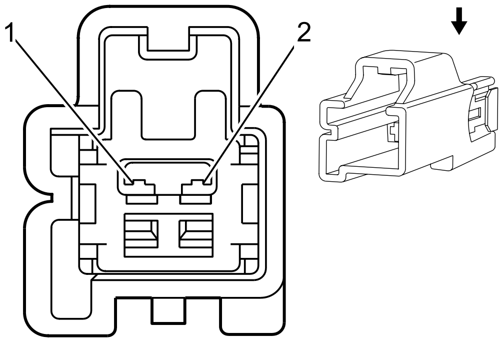
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	13575818	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available

E14C Seat Heating Element - Passenger Back (KA1)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	WH/BN	2481	Passenger Heated Back Element Supply Voltage	I	-
2	0.75	BK	3850	Ground	I	-

E14D Seat Heating Element - Passenger Cushion (KA1)



Connector Part Information

Harness Type: Passenger Seat Cushion

OEM Connector: 7282-6443-40

Service Connector: 19167746

Description: 2-Way M 1.5 Series (GN)

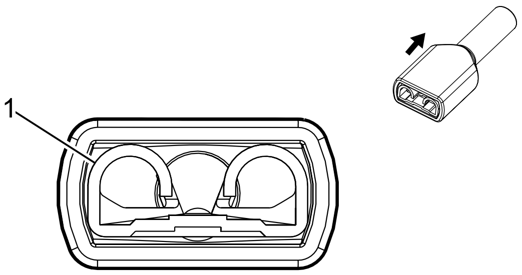
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	13575818	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available

E14D Seat Heating Element - Passenger Cushion (KA1)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	BN/L-BU	2479	Passenger Heated Seat Element Supply Voltage	I	-
2	0.75	BK	3850	Ground	I	-

E17D Outside Rearview Mirror Glass - Driver X1 (DL9)



Connector Part Information

Harness Type: Outside Rearview Mirror - Driver

OEM Connector: 2–520272–2

Service Connector: Service by Component - See Part Catalog

Description: 1-Way F 250 Series Slide Spade Terminal (NA)

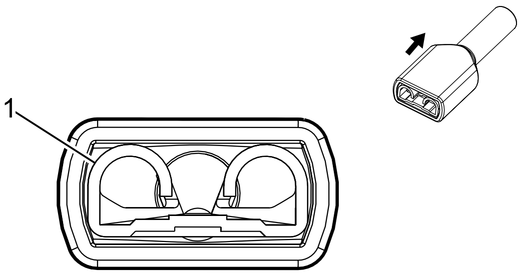
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available

E17D Outside Rearview Mirror Glass - Driver X1 (DL9)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BK	2267	Mirror Heating Element Supply Voltage	I	DL9

E17D Outside Rearview Mirror Glass - Driver X2 (DL9)



Connector Part Information

Harness Type: Outside Rearview Mirror - Driver

OEM Connector: 2–520272–2

Service Connector: Service by Component - See Part Catalog

Description: 1-Way F 250 Series Slide Spade Terminal (NA)

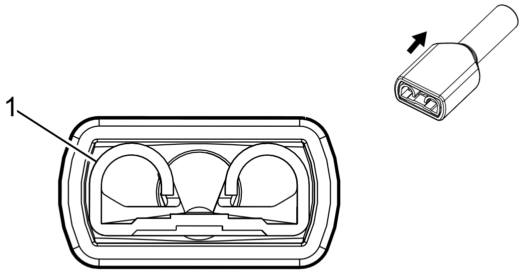
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available

E17D Outside Rearview Mirror Glass - Driver X2 (DL9)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BK	3550	Ground	I	DL9

E17P Outside Rearview Mirror Glass - Passenger X1 (DL9)



Connector Part Information

Harness Type: Outside Rearview Mirror - Passenger

OEM Connector: 2–520272–2

Service Connector: Service by Component - See Part Catalog

Description: 1-Way F 250 Series Slide Spade Terminal (NA)

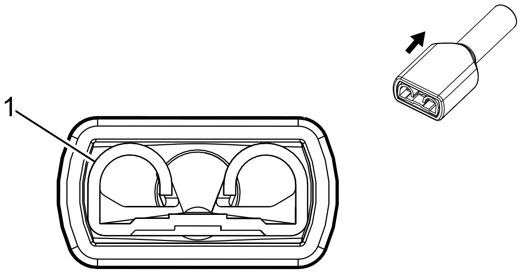
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available

E17P Outside Rearview Mirror Glass - Passenger X1 (DL9)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BK	2267	Mirror Heating Element Supply Voltage	I	DL9

E17P Outside Rearview Mirror Glass - Passenger X2 (DL9)



Connector Part Information

Harness Type: Outside Rearview Mirror - Passenger

OEM Connector: 2–520272–2

Service Connector: Service by Component - See Part Catalog

Description: 1-Way F 250 Series Slide Spade Terminal (NA)

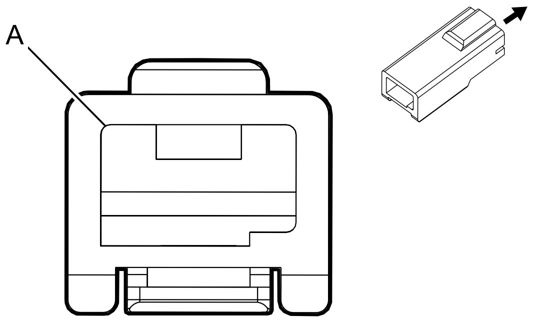
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available

E17P Outside Rearview Mirror Glass - Passenger X2 (DL9)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BK	3650	Ground	I	DL9

E18 Rear Defogger Grid X1 (C49)



Connector Part Information

Harness Type: Body

OEM Connector: 13705266

Service Connector: 19301743

Description: 1-Way F 630 Metri Pack Series (BK)

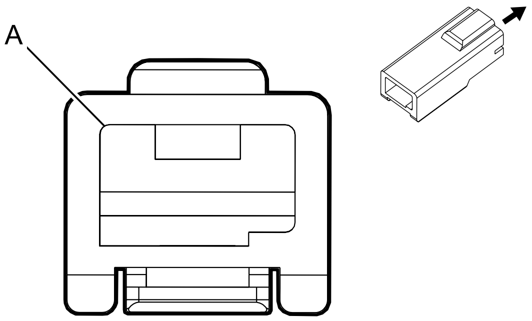
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-42 (RD)	Not Available	Not Available	Not Available	Not Available	Not Available

E18 Rear Defogger Grid X1 (C49)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	2.5	BN/VT	293	Rear Defog Element Supply Voltage	I	-

E18 Rear Defogger Grid X2 (C49)



Connector Part Information

Harness Type: Body

OEM Connector: 13705266

Service Connector: 19301743

Description: 1-Way F 630 Metri Pack Series (BK)

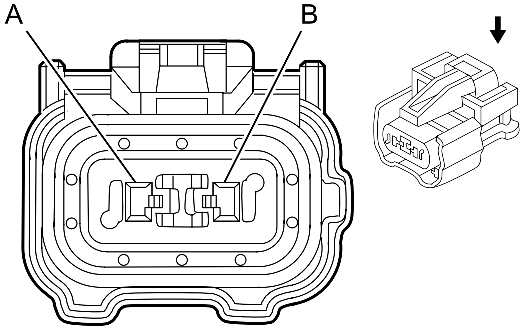
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available

E18 Rear Defogger Grid X2 (C49)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	4	BK	3950	Ground	I	-

E29LF Fog Lamp - Left Front (T3U)



Connector Part Information

Harness Type: Forward Lamp

OEM Connector: 13513272

Service Connector: 19153187

Description: 2-Way F 150 GT Series, Sealed (NA)

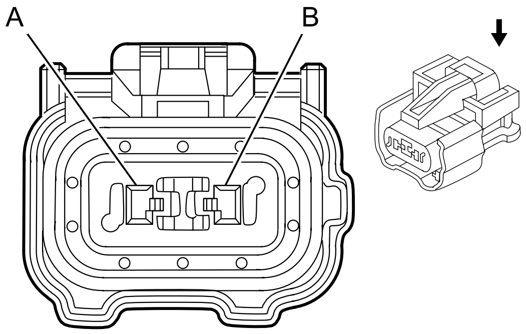
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available

E29LF Fog Lamp - Left Front (T3U)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	0.75	BN/VT	2234	Front Fog Lamp Supply Voltage	I	-
B	0.75	BK	1150	Ground	I	-

E29RF Fog Lamp - Right Front (T3U)



Connector Part Information

Harness Type: Forward Lamp

OEM Connector: 13513272

Service Connector: 19153187

Description: 2-Way F 150 GT Series, Sealed (NA)

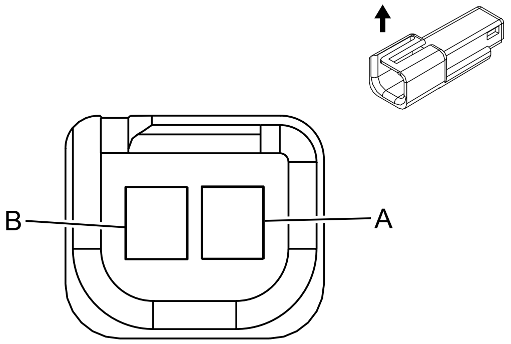
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available

E29RF Fog Lamp - Right Front (T3U)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	0.75	BN/VT	2234	Front Fog Lamp Supply Voltage	I	-
B	0.75	BK	1250	Ground	I	-

E31L Sunshade Mirror Lamp - Left (D6I)



Connector Part Information

Harness Type: Headliner

OEM Connector: 12047663

Service Connector: 13584278

Description: 2-Way M 150 Metri Pack Series (BK)

Harness Type: Headliner Extension

OEM Connector: 12047663

Service Connector: Service by Harness - See Part Catalog

Description: 2-Way M 150 Metri Pack Series (BK)

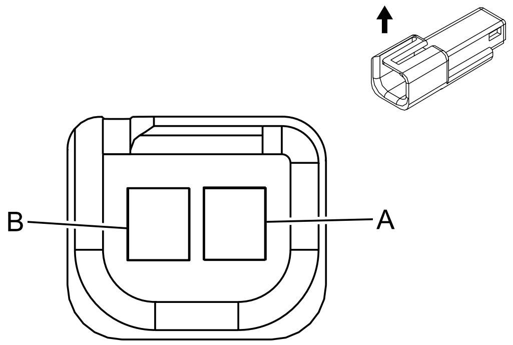
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-3 (GY)	Not Available	Not Available	Not Available	Not Available	Not Available

E31L Sunshade Mirror Lamp - Left (D6I)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	0.5	WH/BN	6815	Inadvertent Power Control	I	-
B	0.5	BK	3150	Ground	I	-

E31R Sunshade Mirror Lamp - Right (D6I)



Connector Part Information

Harness Type: Headliner

OEM Connector: 12047663

Service Connector: 13584278

Description: 2-Way M 150 Metri Pack Series (BK)

Harness Type: Headliner Extension

OEM Connector: 12047663

Service Connector: Service by Harness - See Part Catalog

Description: 2-Way M 150 Metri Pack Series (BK)

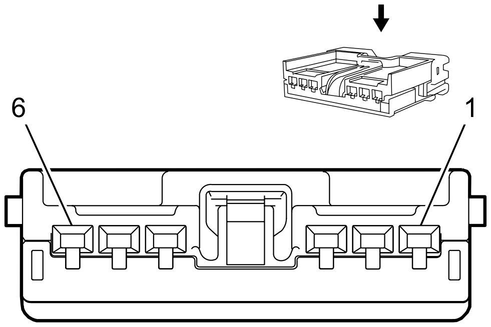
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-3 (GY)	Not Available	Not Available	Not Available	Not Available	Not Available

E31R Sunshade Mirror Lamp - Right (D6I)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	0.5	WH/BN	6815	Inadvertent Power Control	I	-
B	0.5	BK	3150	Ground	I	-

E37F Dome/Reading Lamps - Front (C74)



Connector Part Information

Harness Type: Headliner

OEM Connector: 6098-5985

Service Connector: 13576538

Description: 6-Way F 1.5 Series (BK)

Harness Type: Headliner Extension

OEM Connector: 6098-5985

Service Connector: Service by Harness - See Part Catalog

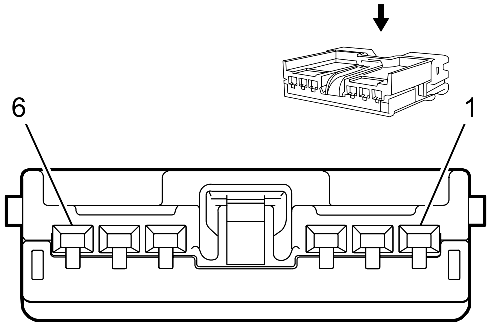
Description: 6-Way F 1.5 Series (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-64B (LT BU)	Not Available	Not Available	Not Available	Not Available	Not Available
II	Not Available	J-35616-2A (GY)	Not Available	Not Available	Not Available	Not Available	Not Available

E37F Dome/Reading Lamps - Front (C74)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	WH/BN	6815	Inadvertent Power Control	I	-
2	0.5	GY	157	Interior Lamp Control	I	-
3	0.5	YE	6817	LED Backlight Dimming Control	I	-
4	0.35	GY/L-GN	328	Interior Lamp Defeat Switch Signal	I	-
5	0.35	GY	156	Courtesy Lamp Switch Signal	I	-
6	0.5	BK	3150	Ground	I	-



Connector Part Information

Harness Type: Headliner

OEM Connector: 6098-5985

Service Connector: 13576538

Description: 6-Way F 1.5 Series (BK)

Harness Type: Headliner Extension

OEM Connector: 6098-5985

Service Connector: Service by Harness - See Part Catalog

Description: 6-Way F 1.5 Series (BK)

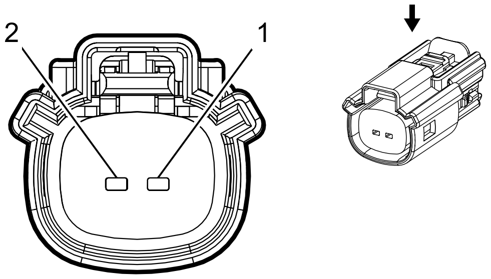
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-64B (LT BU)	Not Available	Not Available	Not Available	Not Available	Not Available
II	Not Available	J-35616-2A (GY)	Not Available	Not Available	Not Available	Not Available	Not Available

E37R Dome/Reading Lamps - Rear (TR0)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	WH/BN	6815	Inadvertent Power Control	I	-
2	0.5	GY	157	Interior Lamp Control	I	-
3-5	-	-	-	Not Occupied	-	-
6	0.5	BK	3150	Ground	I	-

E41 Engine Coolant Thermostat Heater (LCV)



Connector Part Information

Harness Type: Engine

OEM Connector: 33471-0201

Service Connector: 19119765

Description: 2-Way F 1.5 Series, Sealed (BK)

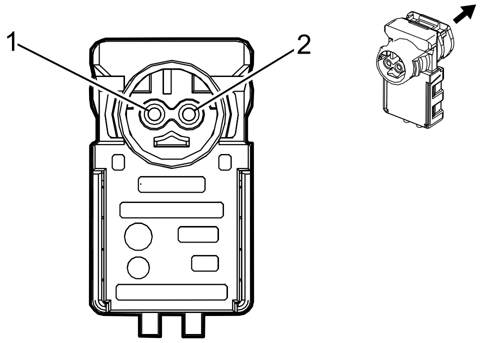
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-2A (GY)	Not Available	Not Available	Not Available	Not Available	Not Available

E41 Engine Coolant Thermostat Heater (LCV)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	VT/L-BU	5293	Powertrain Main Relay Fused Supply (4)	I	-
2	0.5	L-BU	6814	Thermostat Engine Cool Control	I	-

F101 Passenger Instrument Panel Air Bag X1



Connector Part Information

Harness Type: Instrument Panel Air Bag

OEM Connector: 13580454

Service Connector: Service by Component Assembly – See Part Catalog

Description: 2-Way F AK-2 Series (L-GN with YE cover)

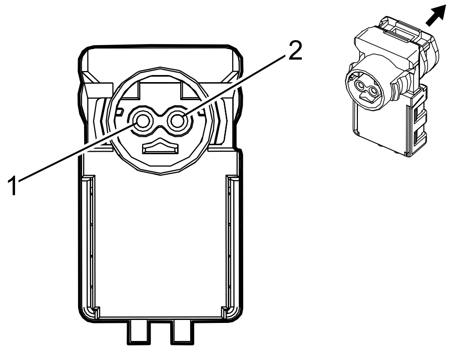
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Service by Component Assembly – See Part Catalog	J-35616-64B (LT BU)	Not Available	Not Available	Not Available	Not Available	Not Available

F101 Passenger Instrument Panel Air Bag X1

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	YE/OG	3025	Passenger IP Module Stage 1 High Control	I	-
2	0.35	OG/WH	3024	Passenger IP Module Stage 1 Low Control	I	-

F101 Passenger Instrument Panel Air Bag X2



Connector Part Information

Harness Type: Instrument Panel Air Bag

OEM Connector: 13580453

Service Connector: Service by Component Assembly – See Part Catalog

Description: 2-Way F AK-2 Series (YE with YE cover)

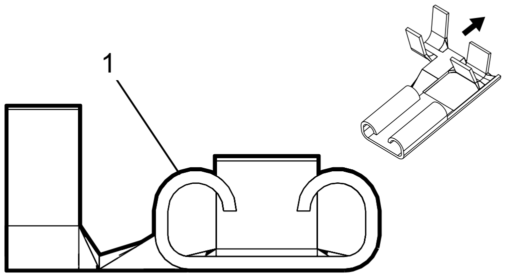
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Service by Component Assembly – See Part Catalog	J-35616-64B (LT BU)	Not Available	Not Available	Not Available	Not Available	Not Available

F101 Passenger Instrument Panel Air Bag X2

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	GY	3027	Passenger IP Module Stage 2 High Control	I	-
2	0.35	OG/VT	3026	Passenger IP Module Stage 2 Low Control	I	-

F101 Passenger Instrument Panel Air Bag X3



Connector Part Information

Harness Type: Instrument Panel Air Bag

OEM Connector: Not Available

Service Connector: Service by Harness — See Part Catalog

Description: 1-Way F 250 Lance Series (NA)

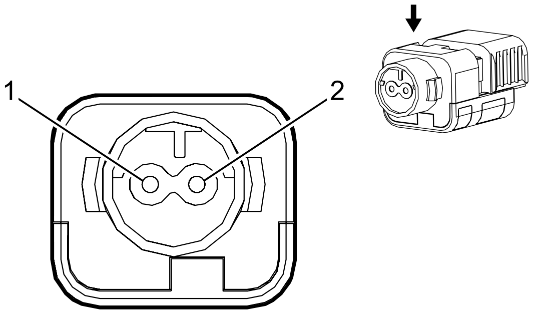
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Service by Harness — See Part Catalog	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available

F101 Passenger Instrument Panel Air Bag X3

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BK/WH	2051	Ground	I	—

F105L Roof Rail Air Bag - Left



Connector Part Information

Harness Type: Body

OEM Connector: 19153419

Service Connector: 19300405

Description: 2-Way F 0.64 Series (BK with YE Cover)

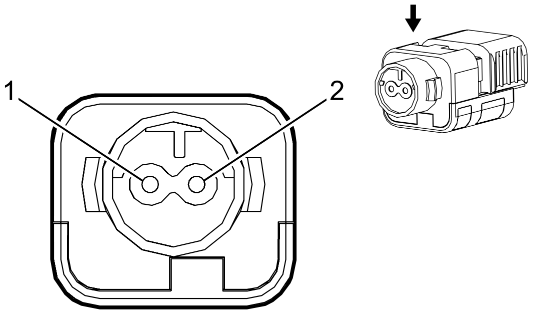
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	No Tool Required	Not Available	Not Available	Not Available	Not Available	Not Available

F105L Roof Rail Air Bag - Left

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	OG/L-GN	5019	Left Front Head Curtain Module High Control	I	-
2	0.5	VT/OG	5020	Left Front Head Curtain Module Low Control	I	-

F105R Roof Rail Air Bag - Right



Connector Part Information

Harness Type: Body

OEM Connector: 19153419

Service Connector: 19300405

Description: 2-Way F 0.64 Series (BK with YE Cover)

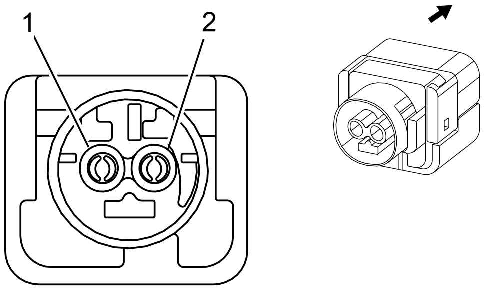
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	No Tool Required	Not Available	Not Available	Not Available	Not Available	Not Available

F105R Roof Rail Air Bag - Right

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	OG/GY	5021	Right Front Head Curtain Module High Control	I	-
2	0.5	WH/OG	5022	Right Front Head Curtain Module Low Control	I	-

F106D Seat Side Air Bag - Driver



Connector Part Information

Harness Type: Driver Seat Back

OEM Connector: PPI0001142

Service Connector: 19300405

Description: 2-Way F FPB 180 1 Series (BK with YE cover)

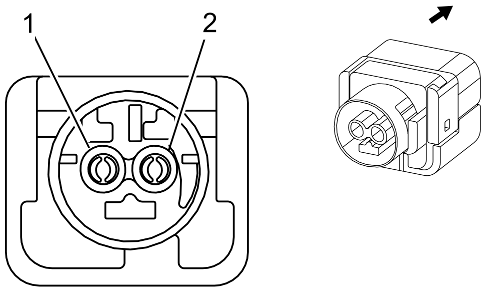
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available

F106D Seat Side Air Bag - Driver

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	OG/L-BU	3068	Driver Side Impact Module High Control	I	-
2	0.5	L-GN/OG	3069	Driver Side Impact Module Low Control	I	-

F106P Seat Side Air Bag - Passenger



Connector Part Information

Harness Type: Passenger Seat Back

OEM Connector: PPI0001142

Service Connector: 19300405

Description: 2-Way F FPB 180 1 Series (BK with YE cover)

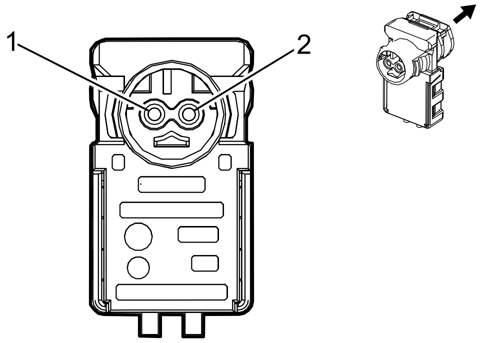
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available

F106P Seat Side Air Bag - Passenger

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	OG/GY	3066	Passenger Side Impact Module High Control	I	-
2	0.5	BN/OG	3067	Passenger Side Impact Module Low Control	I	-

F107 Steering Wheel Air Bag X1



Connector Part Information

Harness Type: Steering Wheel Air Bag Coil

OEM Connector: 13580454

Service Connector: Service by Component Assembly – See Part Catalog

Description: 2-Way F AK-2 Series (L-GN with YE cover)

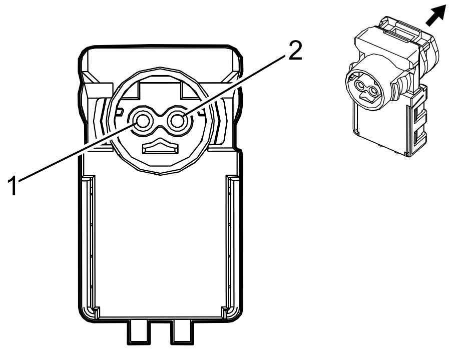
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Service by Component Assembly – See Part Catalog	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available

F107 Steering Wheel Air Bag X1

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.50	TN	3021	Steering Wheel Module – Stage 1 – High Control	I	-
2	0.50	BN	3020	Steering Wheel Module – Stage 1 – Low Control	I	-

F107 Steering Wheel Air Bag X2



Connector Part Information

Harness Type: Steering Wheel Air Bag Coil

OEM Connector: 13580453

Service Connector: Service by Component Assembly – See Part Catalog

Description: 2-Way F AK-2 Series (YE with YE cover)

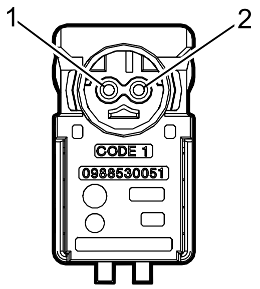
Terminal Part Information

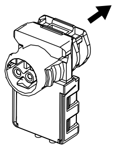
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Service by Component Assembly – See Part Catalog	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available

F107 Steering Wheel Air Bag X2

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	WH	3023	Steering Wheel Module – Stage 2 – High Control	I	-
2	0.35	PK	3022	Steering Wheel Module – Stage 2 – Low Control	I	-

F112D Seat Belt Retractor Pretensioner - Driver





Connector Part Information

Harness Type: Body

OEM Connector: 13580455

Service Connector: 19119345

Description: 2-Way F AK 2 Series

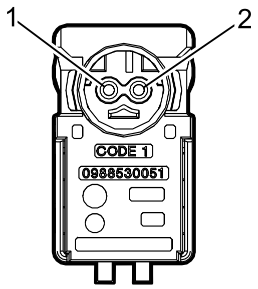
Terminal Part Information

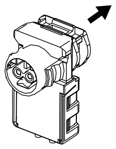
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	No Tool Required	Not Available	Not Available	Not Available	Not Available	Not Available

F112D Seat Belt Retractor Pretensioner - Driver

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	OG/WH	3477	Driver Seat Belt Retractor Pretensioner High Control	I	-
2	0.35	GY/OG	3478	Driver Seat Belt Retractor Pretensioner Low Control	I	-

F112P Seat Belt Retractor Pretensioner - Passenger





Connector Part Information

Harness Type: Body

OEM Connector: 13580455

Service Connector: 19119345

Description: 2-Way F AK 2 Series

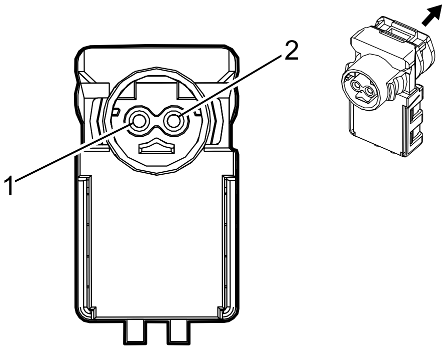
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	No Tool Required	Not Available	Not Available	Not Available	Not Available	Not Available

F112P Seat Belt Retractor Pretensioner - Passenger

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	OG/L-GN	3475	Passenger Seat Belt Retractor Pretensioner High Control	I	-
2	0.35	WH/OG	3476	Passenger Seat Belt Retractor Pretensioner Low Control	I	-

F113D Seat Belt Anchor Pretensioner – Driver



Connector Part Information

Harness Type: Driver Seat Cushion

OEM Connector: 13580453

Service Connector: Service by Harness – See Part Catalog

Description: 2-Way F AK-2 Series (YE with YE cover)

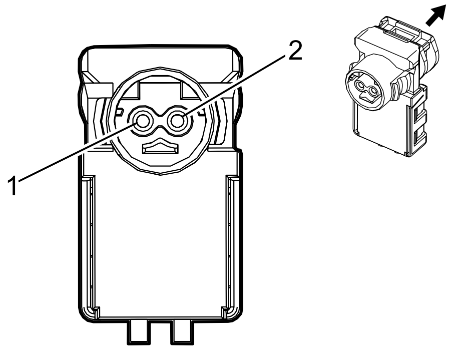
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available

F113D Seat Belt Anchor Pretensioner – Driver

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BN/WH	3481	Driver Seat Belt Anchor Pretensioner High Control	I	-
2	0.5	YE/VT	3482	Driver Seat Belt Anchor Pretensioner Low Control	I	-

F113P Seat Belt Anchor Pretensioner - Passenger



Connector Part Information

Harness Type: Passenger Seat Cushion

OEM Connector: 13580453

Service Connector: Service by Harness – See Part Catalog

Description: 2-Way F AK-2 Series (YE with YE cover)

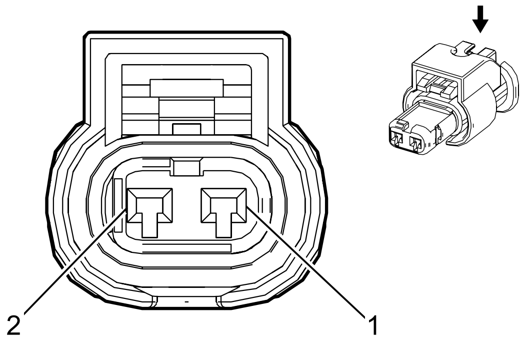
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available

F113P Seat Belt Anchor Pretensioner - Passenger

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	OG/BN	3479	Passenger Seat Belt Anchor Pretensioner High Control	I	-
2	0.5	GY/OG	3480	Passenger Seat Belt Anchor Pretensioner Low Control	I	-

G1 A/C Compressor



Connector Part Information

Harness Type: Engine

OEM Connector: 2-1823608-5

Service Connector: 19299928

Description: 2-Way F 1.2 Multiple Contact Point Series, Sealed (BK with NA Inner Connector)

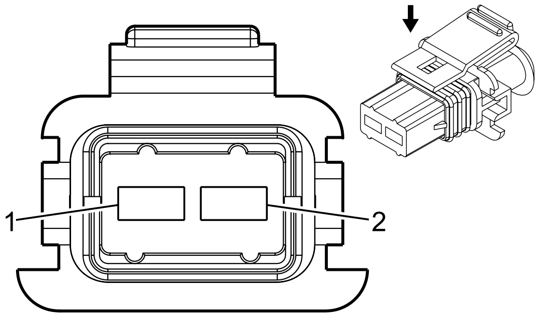
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-16 (LT GN)	Not Available	Not Available	Not Available	Not Available	Not Available
II	Not Available	J-35616-64B (LT BU)	Not Available	Not Available	Not Available	Not Available	Not Available

G1 A/C Compressor

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	L-BU/YE	7574	Electric Variable Displacement Control	I	-
2	0.75	L-BU/BN	7573	Electric Variable Displacement Supply	I	-

G13 Generator X1



Connector Part Information

Harness Type: Engine

OEM Connector: 12186308

Service Connector: 13585849

Description: 2-Way F Junior Power Timer Series, Sealed (BK)

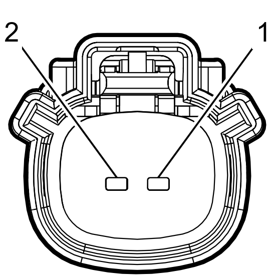
Terminal Part Information

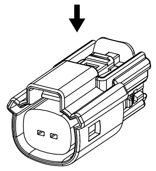
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-35 (VT)	Not Available	Not Available	Not Available	Not Available	Not Available
II	Not Available	J-35616-64B (LT BU)	Not Available	Not Available	Not Available	Not Available	Not Available

G13 Generator X1

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	L-BU/WH	225	Generator Turn On Signal	I	-
2	0.5	GY	23	Generator Field Duty Cycle Signal	I	-

G18 High Pressure Fuel Pump (LCV)





Connector Part Information

Harness Type: Engine

OEM Connector: 33471-0206

Service Connector: 13577534

Description: 2-Way F 1.5 Series, Sealed (BK)

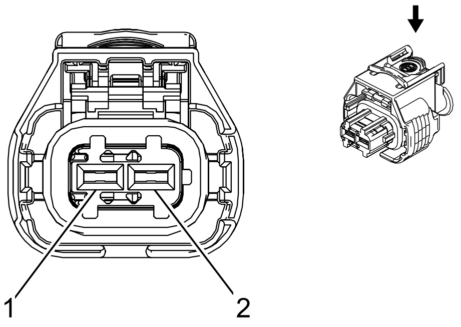
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-2A (GY)	Not Available	Not Available	Not Available	Not Available	Not Available

G18 High Pressure Fuel Pump (LCV)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	YE	7301	High Pressure Fuel Pump Actuator High - Control	I	-
2	0.5	VT/BK	7300	High Pressure Fuel Pump Actuator Low - Control	I	-

G18 High Pressure Fuel Pump (LFX)



Connector Part Information

Harness Type: Engine

OEM Connector: 1928405521

Service Connector: 13384371

Description: 2-Way F 2.8 Series, Sealed (BK)

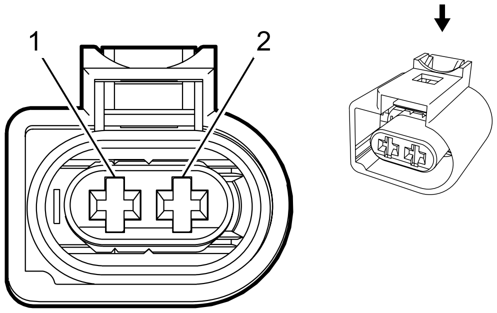
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-64B (LT BU)	Not Available	Not Available	Not Available	Not Available	Not Available

G18 High Pressure Fuel Pump (LFX)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	VT/BK	7300	High Pressure Fuel Pump Actuator Low - Control	I	-
2	0.5	YE	7301	High Pressure Fuel Pump Actuator High - Control	I	-

G24 Windshield Washer Pump



Connector Part Information

Harness Type: Forward Lamp

OEM Connector: 1-1355200-1

Service Connector: 13576532

Description: 2-Way F 2.8 MDK5 Series, Sealed (BK)

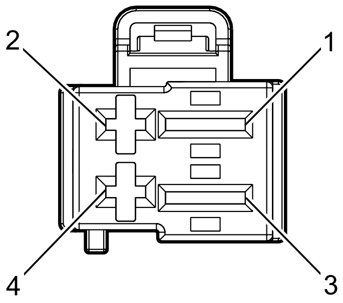
Terminal Part Information

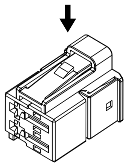
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-35 (VT)	Not Available	Not Available	Not Available	Not Available	Not Available

G24 Windshield Washer Pump

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	GY/VT	228	Windshield Washer Pump Control	I	-
2	0.75	BK	1150	Ground	I	-

K8 Blower Motor Control Module





Connector Part Information

Harness Type: Instrument Panel

OEM Connector: 1-1418507-2

Service Connector: 19329746

Description: 4-Way F 2.8, 6.3 Multiple Contact Point Series (BK)

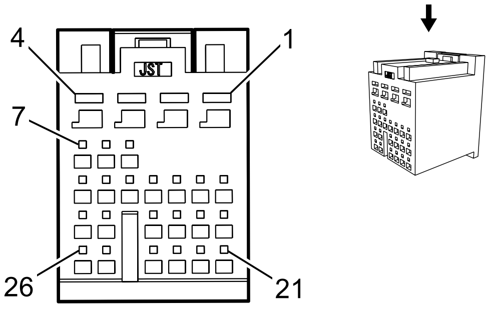
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-64B (LT BU)	Not Available	Not Available	Not Available	Not Available	Not Available

K8 Blower Motor Control Module

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	5	BK	2250	Ground	I	-
2	-	-	-	Not Occupied	-	-
3	2.5	RD/VT	542	Battery Positive Voltage	I	-
4	0.35	L-BU/GY	754	Blower Motor Speed Control	I	-

K9 Body Control Module X1



Connector Part Information

Harness Type: Instrument Panel

OEM Connector: HIT2PB-26-B-S

Service Connector: 19151262

Description: 26-Way F 0.64, 2.8 Series (WH)

Terminal Part Information

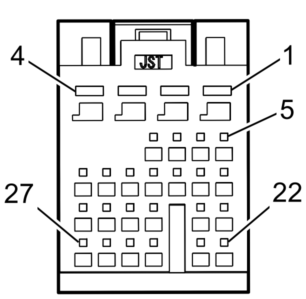
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	19303556	J-35616-64B (L-BU)	J-38125-12A	Not Available	Not Available	Not Available	Not Available
II	13575870	J-35616-35 (VT)	J-38125-12A	Not Available	Not Available	Not Available	Not Available

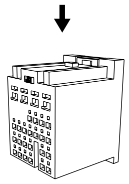
K9 Body Control Module X1

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	BK	2150	Ground	I	-
2	1	RD/L-GN	2440	Battery Positive Voltage	I	-
3	1	RD/YE	2340	Battery Positive Voltage	I	-
4	0.75	RD/BN	2240	Battery Positive Voltage	I	-
5	0.35	WH	6816	Indicator Dimming Control	II	-
6	-	-	-	Not Occupied	-	-
7	0.35	BK/YE	5005	Instrument Panel Lamp Dimmer Switch Low Reference	II	-
8-9	-	-	-	Not Occupied	-	-
10	0.35	L-BU/YE	6844	ABS/TCS Hill Descent Control Switch Signal	II	-
11	0.35	L-GN/BN	306	Headlamp Switch Headlamps Off Signal Control	II	-
12	-	-	-	Not Occupied	-	-
13	0.35	L-BU/RD	1688	5 Volt Reference	II	-
14	0.35	GY/L-GN	328	Interior Lamp Defeat Switch Signal	II	-
15	0.35	L-BU/GY	192	Front Fog Lamp Switch Signal	II	-

16	0.35	WH/VT	103	Headlamp Switch On Signal	II	-
17-18	-	-	-	Not Occupied	-	-
19	0.35	BK/BN	5360	Brake Apply Sensor Low Reference	II	-
20	-	-	-	Not Occupied	-	-
21	0.35	GY	728	Security Indicator Control	II	-
22	0.35	L-GN/GY	13	Headlamp Switch Park Lamp Signal	II	-
23	-	-	-	Not Occupied	-	-
24	0.5	WH	2501	High Speed GMLAN Serial Data (-) (1)	II	-
25	0.5	L-BU	2500	High Speed GMLAN Serial Data (+) (1)	II	-
26	0.35	L-BU/WH	3275	Remote Function Actuator Receive Signal	II	-

K9 Body Control Module X2





Connector Part Information

Harness Type: Instrument Panel

OEM Connector: HIT2PB-27-C-LE

Service Connector: 19151266

Description: 27-Way F 0.64 2.8 Series (L-BU)

Terminal Part Information

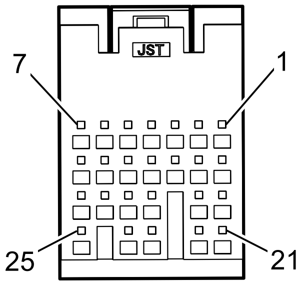
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	19303556	J-35616-64B (L-BU)	J-38125-12A	Not Available	Not Available	Not Available	Not Available
II	13575870	J-35616-35 (VT)	J-38125-12A	Not Available	Not Available	Not Available	Not Available
III	19303557	J-35616-64B (L-BU)	J-38125-12A	Not Available	Not Available	Not Available	Not Available

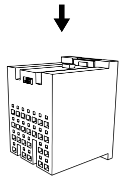
K9 Body Control Module X2

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	RD/GY	2140	Battery Positive Voltage	I	-
2	0.75	BK	2150	Ground	I	-
3	-	-	-	Not Occupied	-	-
4	2.5	RD/VT	4040	Battery Positive Voltage	III	-
5	0.5	GY	157	Interior Lamp Control	II	-
6	0.35	GY	5697	Child Lockout Indicator	II	-
7	0.35	L-BU/YE	5361	Brake Apply Sensor Signal	II	-
8	0.5	YE	6817	LED Backlight Dimming Control	II	-
9	0.35	YE/GY	44	Instrument Panel Lamp Dimmer Switch Signal	II	-
10	0.35	WH/L-BU	278	Ambient Light Sensor Signal	II	-
11	0.35	VT/YE	5526	Tap Up/Tap Down Switch Signal	II	-
12	-	-	-	Not Occupied	-	-
13	0.35	WH	5359	Brake Apply Sensor Supply Voltage	II	-

14	0.35	L-BU/VT	1788	Traction Control Switch Signal (1)	II	-
15	0.35	BN/WH	781	Driver Door Lock Switch Unlock Signal	II	-
16	0.35	GY	3273	Remote Function Actuator Return	II	-
17	-	-	-	Not Occupied	-	-
18	0.35	YE/BN	3265	Child Security Lock Switch Signal	II	-
19	0.35	BN/YE	780	Driver Door Lock Switch Lock Signal	II	-
20	0.5	WH/L-BU	3691	Trailer Brake Apply Signal	II	Z82
21	0.5	L-GN/GY	6135	Linear Interconnect Network Bus 4	II	-
22	0.5	L-GN	5060	Low Speed GMLAN Serial Data	II	-
23	0.35	WH	2501	High Speed GMLAN Serial Data (-) (1)	II	-
24	0.35	L-BU	2500	High Speed GMLAN Serial Data (+) (1)	II	-
25	0.35	GY/WH	3272	Remote Function Actuator Supply Voltage	II	-
26	0.35	L-GN/WH	111	Hazard Switch Signal	II	-
27	0.35	YE/L-GN	3274	Remote Function Actuator Transmit Signal	II	-

K9 Body Control Module X3





Connector Part Information

Harness Type: Instrument Panel

OEM Connector: HIT2PB-25-A-LM

Service Connector: 19151261

Description: 25-Way F 0.64 Series (L-GN)

Terminal Part Information

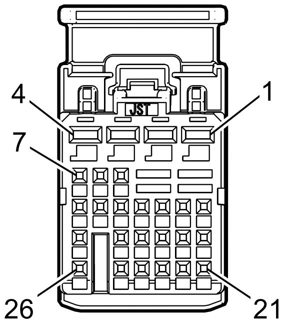
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	13575870	J-35616-35 (VT)	J-38125-12A	Not Available	Not Available	Not Available	Not Available

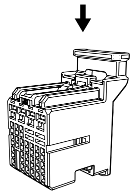
K9 Body Control Module X3

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	L-GN/GY	3277	Vehicle Anti-Theft System Immobilizer Return	I	-
2	0.35	L-GN/VT	7533	Linear Interconnect Network Bus 11	I	-
3	0.35	GY/BK	3276	Vehicle Anti-Theft System Immobilizer Supply Voltage	I	-
4	0.35	WH/RD	1444	12 Volt Reference	I	-
5	0.5	VT/YE	4	Accessory Voltage	I	-
6	0.5	VT/BK	3	Run/Crank Ignition 1 Voltage	I	-
7	0.35	VT/YE	143	Accessory Voltage	I	-
8	0.35	L-GN	6818	Steering Wheel Resistor Ladder Signal #1	I	-
9	0.35	BN/L-GN	1884	Cruise Control Set/Coast/Resume/Accelerate Switch Signal	I	-
10	0.35	BK/GY	6009	Windshield Wiper Switch Low Reference	I	-
11	0.35	WH	524	Headlamp Dimmer Switch High Beam Signal	I	-
12	0.35	WH/L-GN	663	Hazard Switch Left Turn Signal	I	-
13	0.35	YE/L-BU	1714	Windshield Wiper Switch Low Signal	I	-
14	0.35	L-BU/GY	553	Shift Select Switch Performance Signal	I	-
15	0.5	WH/VT	1020	Off/Run/Crank Voltage	I	-

16	0.35	GY/L-GN	5737	Adaptive Cruise Control Gap Up/Down Switch Signal	I	-
17	0.35	YE/BN	307	Headlamp Switch Flash To Pass Signal	I	-
18	0.35	L-GN/WH	3287	Horn Switch Signal	I	-
19	0.5	L-GN/WH	7527	Linear Interconnect Network Bus 5	I	-
20	0.35	GY	1715	Windshield Wiper Switch High Signal	I	-
21	-	-	-	Not Occupied	-	-
22	0.5	WH/BK	1073	Ignition Key Resistor Signal	I	-
23	-	-	-	Not Occupied	-	-
24	0.35	VT/L-BU	664	Hazard Switch Right Turn Signal	I	-
25	0.35	WH/BK	94	Windshield Washer Switch Signal	I	-

K9 Body Control Module X4





Connector Part Information

Harness Type: Body

OEM Connector: HIT2PB-26-D-K

Service Connector: 19151263

Description: 26-Way F 0.64 2.8 Series (BK)

Terminal Part Information

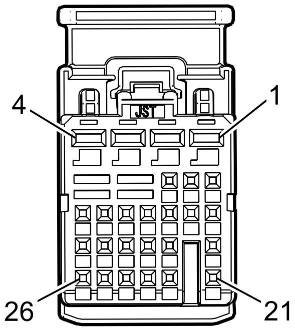
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	13587425	J-35616-35 (VT)	J-38125-12A	Not Available	Not Available	Not Available	Not Available
II	13575870	J-35616-64B (L-BU)	J-38125-12A	Not Available	Not Available	Not Available	Not Available

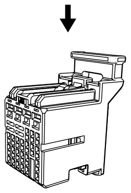
K9 Body Control Module X4

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	1.5	YE	312	Right Headlamp Low Beam Supply Voltage	I	-
2	1.5	YE	712	Left Headlamp Low Beam Supply Voltage	I	-
3	0.75	L-GN/VT	1315	Right Front Turn Signal Lamp Supply Voltage	I	-
4	1.5	WH/YE	7541	Right Rear Stop Lamp Supply Voltage	I	-
5	0.5	GY/BN	309	Right Park Lamp Supply Voltage	II	-
6	0.5	VT/GY	709	Left Park Lamp Supply Voltage	II	-
7	0.5	BN/L-BU	2509	Left Rear Park Lamp Supply Voltage	II	-
8-11	-	-	-	Not Occupied	-	-
12	0.35	GY/VT	755	RAP Relay Coil Control	II	-
13	0.5	L-GN/YE	6846	Rear License Lamp Supply Voltage	II	-
14	0.5	BN/GY	2268	Windshield Washer Relay Control	II	-
15	0.35	L-GN/VT	5199	Run/Crank Relay Coil Control	II	-
16	0.5	GY	91	Windshield Wiper Motor Relay Coil Supply Voltage	II	-
17	0.5	BN/L-GN	196	Windshield Wiper Motor Park Switch Signal	II	-

18	0.5	WH/YE	5075	Current Sensor Signal	II	-
19	-	-	-	Not Occupied	-	-
20	0.5	RD/BN	440	Battery Positive Voltage	II	-
21	0.5	L-BU/VT	5076	Current Sensor Supply Voltage	II	-
22	0.35	VT/YE	5985	Accessory Wakeup Serial Data	II	-
23	0.5	WH/L-BU	5986	Serial Data Communication Enable	II	-
24	0.5	BN/L-GN	109	Hood Ajar Switch Signal	II	-
25	-	-	-	Not Occupied	-	-
26	0.5	BK	1650	Ground	II	-

K9 Body Control Module X5





Connector Part Information

Harness Type: Body

OEM Connector: HIT2PB-26-E-N

Service Connector: 19151264

Description: 26-Way F 0.64 2.8 Series (BN)

Terminal Part Information

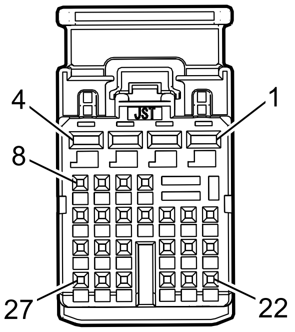
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	13587425	J-35616-35 (VT)	J-38125-12A	Not Available	Not Available	Not Available	Not Available
II	13575870	J-35616-64B (L-BU)	J-38125-12A	Not Available	Not Available	Not Available	Not Available

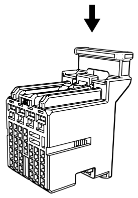
K9 Body Control Module X5

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	1.5	GY/YE	7542	Left Rear Stop Lamp Supply Voltage	I	-
2	0.75	L-BU/WH	1314	Left Front Turn Signal Lamp Supply Voltage	I	-
3	1.5	RD/WH	2740	Battery Positive Voltage	I	-
4	1.5	RD/VT	2640	Battery Positive Voltage	I	-
5	-	-	-	Not Occupied	-	-
6	0.5	BK/VT	5077	Current Sensor Low Reference	II	-
7	0.5	BN/GY	2609	Right Rear Park Lamp Supply Voltage	II	-
8	0.5	L-BU/WH	5186	Left Trailer Turn Signal Lamp	II	-
9-11	-	-	-	Not Occupied	-	-
12	0.35	WH/L-BU	6311	Cruise/ETC/TCC Brake Signal	II	-
13	0.5	BN/WH	1317	Fog Lamp Relay Control	II	-
14	0.5	VT/BN	300	Run Ignition 3 Voltage	II	-
15	-	-	-	Not Occupied	-	-
16	0.5	VT/YE	3267	Child Security Lock Relay Control	II	-

17	0.5	YE/GY	5187	Right Trailer Turn Signal Lamp	II	-
18	0.5	BN/VT	1969	Headlamp High Beam Relay Control	II	-
19	0.5	BN/WH	28	Horn Relay Control	II	-
20-21	-	-	-	Not Occupied	-	-
22	0.5	L-BU	45	Park Lamp Relay Control	II	-
23	-	-	-	Not Occupied	-	-
24	0.5	WH/VT	860	Front Windshield Wiper Switch High Signal	II	-
25	-	-	-	Not Occupied	-	-
26	0.5	L-BU/BN	38	Backup Lamp Relay Control	II	-

K9 Body Control Module X6





Connector Part Information

Harness Type: Body

OEM Connector: HIT2PB-27-F-PK

Service Connector: 19151267

Description: 27-Way F 0.64 2.8 Series (PK)

Terminal Part Information

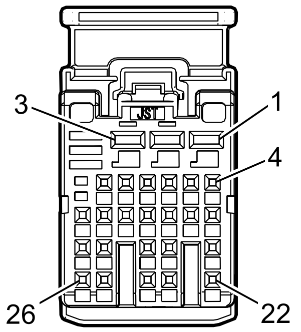
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	13587425	J-35616-35 (VT)	J-38125-12A	Not Available	Not Available	Not Available	Not Available
II	13575870	J-35616-64B (L-BU)	J-38125-12A	Not Available	Not Available	Not Available	Not Available

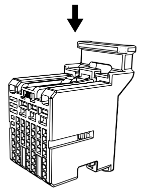
K9 Body Control Module X6

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	GY	5911	Door Lock Actuator Lock Control 2	I	-
2	1.5	GY/L-GN	3271	Door Lock Control (2)	I	-
3	1.5	BK	3150	Ground	I	-
4	1.5 0.75	BN/YE BN/YE	294 294	Door Lock Actuator Unlock Control Door Lock Actuator Unlock Control	I	CREW CAB EXTENDED CAB
5-8	-	-	-	Not Occupied	-	-
9	0.5	L-GN/L-BU	6133	Linear Interconnect Network Bus 2	II	-
10	0.5	L-GN/YE	6134	Linear Interconnect Network Bus 3	II	-
11-15	-	-	-	Not Occupied	-	-
16	0.5	L-GN/BN	6132	Linear Interconnect Network Bus 1	II	-
17-23	-	-	-	Not Occupied	-	-
24	0.5	L-BU	2500	High Speed GMLAN Serial Data (+) (1)	II	-
25	0.5	WH	2501	High Speed GMLAN Serial Data (-) (1)	II	-
26	-	-	-	Not Occupied	-	-
27	0.35	GY	747	Left Rear Door Ajar Switch Signal	II	-

27	0.35	GY	747	Left Rear Door Ajar Switch Signal	II	-

K9 Body Control Module X7





Connector Part Information

Harness Type: Body

OEM Connector: HIT2PB-26-G-H

Service Connector: 19151265

Description: 26-Way F 0.64 2.8 Series (GY)

Terminal Part Information

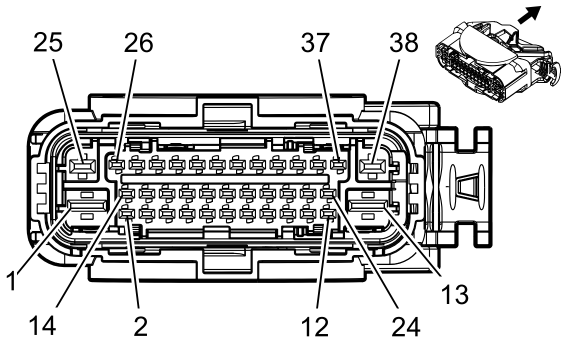
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	13575870	J-35616-64B (L-BU)	J-38125-12A	Not Available	Not Available	Not Available	Not Available
II	13587425	J-35616-35 (VT)	J-38125-12A	Not Available	Not Available	Not Available	Not Available

K9 Body Control Module X7

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	-	-	-	Not Occupied	-	-
2	0.75	WH/BN	6815	Inadvertent Power Control	II	-
3	0.75	L-GN/WH	24	Backup Lamp Supply Voltage	II	-
4-5	-	-	-	Not Occupied	-	-
6	0.5	VT/BK	7553	Park Lock Solenoid Control	I	-
7	0.5	BN/WH	1429	Standing Lamp Relay Control	I	-
8	0.5	VT/WH	5065	Stop Lamp Relay Coil Supply Voltage	I	-
9-10	-	-	-	Not Occupied	-	-
11	0.35	GY	748	Right Rear Door Ajar Switch Signal	I	-
12	0.35	BN/WH	3269	Child Security Lock Motor Status Signal Left Rear	I	-
13	0.5	WH/VT	5905	Key Capture/Column Lock Shift Position Signal	I	-
14	0.5	GY	158	Cargo Lamp Switch Signal	I	-
15	0.5	L-BU/VT	1134	Park Brake Switch Signal	I	-
16	0.5	WH/L-BU	3691	Trailer Brake Apply Signal	I	Z82

17	-	-	-	Not Occupied	-	-
18	0.35	GY/BK	3268	Child Security Lock Motor Status Signal Right Rear	I	-
19	0.35	GY	156	Courtesy Lamp Switch Signal	I	-
20	-	-	-	Not Occupied	-	-
21	0.35	YE/VT	244	Passenger Door Lock Switch Lock Control	I	-
22	-	-	-	Not Occupied	-	-
23	0.5	L-GN	5060	Low Speed GMLAN Serial Data	I	-
24	0.35	BN/VT	245	Passenger Door Lock Switch Unlock Control	I	-
25-26	-	-	-	Not Occupied	-	-

K17 Electronic Brake Control Module



Connector Part Information

Harness Type: Chassis

OEM Connector: 13359630

Service Connector: 19299780

Description: 38-Way F 1.5, 2.8, 4.8 Series, Sealed

Terminal Part Information

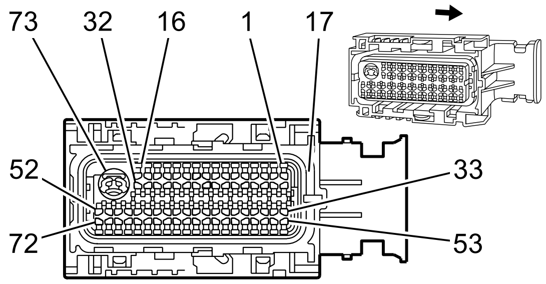
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	19119373	J-35616-64B (L-BU)	J-38125-12A	Not Available	Not Available	Not Available	Not Available
II	13584537	J-35616-14 (GN)	J-38125-560	Not Available	Not Available	Not Available	Not Available
III	13578853	J-35616-35 (VT)	J-38125-561	Not Available	Not Available	Not Available	Not Available

K17 Electronic Brake Control Module

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	4	RD/GY	1042	Battery Positive Voltage	I	-
2-3	-	-	-	Not Occupied	-	-
4	0.5	YE/VT	6030	Brake Vacuum Sensor Signal	II	-
5	-	-	-	Not Occupied	-	-
6	0.5	WH/L-BU	5986	Serial Data Communication Enable	II	-
7-8	-	-	-	Not Occupied	-	-
9	0.5	WH	2501	High Speed GMLAN Serial Data (-) (1)	II	-
10	0.5	WH	2501	High Speed GMLAN Serial Data (-) (1)	II	-
11	0.5	L-BU	2500	High Speed GMLAN Serial Data (+) (1)	II	-
12	0.5	L-BU	2500	High Speed GMLAN Serial Data (+) (1)	II	-
13	4	BK	550	Ground	I	-
14-15	-	-	-	Not Occupied	-	-
16	0.5	YE/RD	6031	Brake Vacuum Sensor 5 Volt Reference	II	-

17	-	-	-	Not Occupied	-	-
18	0.5	WH	6106	High Speed GMLAN Serial Data (-) (2)	II	-
19	0.5	L-BU/YE	6105	High Speed GMLAN Serial Data (+) (2)	II	-
20	-	-	-	Not Occupied	-	-
21	0.5	L-GN/GY	333	Brake Fluid Level Sensor Signal	II	-
22	0.5	BK/YE	6032	Brake Vacuum Sensor Low Reference	II	-
23-24	-	-	-	Not Occupied	-	-
25	2.5	RD/YE	442	Battery Positive Voltage	III	-
26	0.5	YE	872	Wheel Speed Sensor Signal Right Front	II	-
27	0.5	GY/BN	7065	Wheel Speed Sensor Supply Voltage Right Front	II	-
28	0.5	BN	6305	Brake Vacuum Switch Signal	II	-
29	0.5	GY/BK	7127	Wheel Speed Sensor Supply Voltage Left Rear	II	-
30	0.5	L-BU	884	Wheel Speed Sensor Signal Left Rear	II	-
31-32	-	-	-	Not Occupied	-	-
33	0.5	VT	882	Wheel Speed Sensor Signal Right Rear	II	-
34	0.5	GY/YE	7128	Wheel Speed Sensor Supply Voltage Right Rear	II	-
35	-	-	-	Not Occupied	-	-
36	0.5	GY/WH	7064	Wheel Speed Sensor Supply Voltage Left Front	II	-
37	0.5	GY	830	Wheel Speed Sensor Signal Left Front	II	-
38	-	-	-	Not Occupied	-	-

K20 Engine Control Module X1



Connector Part Information

Harness Type: Engine

OEM Connector: 34566-0303

Service Connector: 13574782

Description: 73-Way F 0.64, 2.8 Series, Sealed (BK with BU Terminal Position Assurance)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	13575812	J-35616-16 (LT GN)	J-38125-213	Not Available	Not Available	Not Available	Not Available
II	13579770	J-35616-35 (VT)	J-38125-11A	Not Available	Not Available	Not Available	Not Available
III	19119374	J-35616-64B (L-BU)	J-38125-12A	Not Available	Not Available	Not Available	Not Available
IV	19303617	J-35616-64B (L-BU)	J-38125-11A	Not Available	Not Available	Not Available	Not Available

K20 Engine Control Module X1

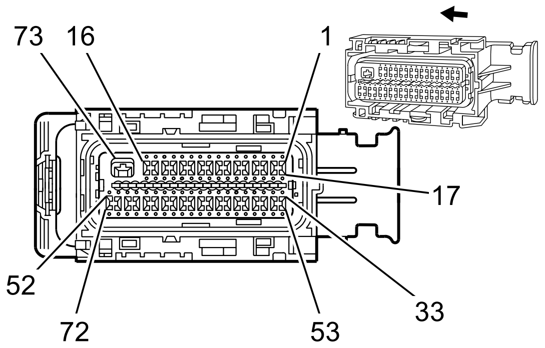
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1-3	-	-	-	Not Occupied	-	-
4	0.5	YE/WH	3200	Throttle Inlet Absolute Pressure Sensor Signal	III	LFX
5	0.5	WH/RD	3201	Throttle Inlet Absolute Pressure Sensor 5V Reference	III	LFX
6	0.5	L-GN	380	A/C Refrigerant Pressure Sensor Signal	III	LFX
7	0.5	WH	7494	High Speed GMLAN Serial Data (-)(3)	I	LCV
8	0.5	L-BU/YE	7493	High Speed GMLAN Serial Data (+)(3)	I	LCV
9	0.5 0.5	L-BU L-BU/WH	2500 890	High Speed GMLAN Serial Data (+) (1) Fuel Tank Pressure Sensor Signal	I	LFX LCV
10	0.5 0.5	WH YE/RD	2501 2709	High Speed GMLAN Serial Data (-) (1) Fuel Tank Pressure Sensor 5 Volt Reference	I	LFX LCV
11	0.5	BN/RD	1274	Accelerator Pedal Position 5 Volt Reference (2)	I	LCV
12	0.5	WH/RD	1164	Accelerator Pedal Position 5 Volt Reference (1)	I	LCV
13	0.5	VT/YE	5985	Accessory Wakeup Serial Data	I	LFX

13	0.5 0.5	VT/YE L-BU/GY	5985 636	Accessory Wakeup Serial Data Outside Ambient Air Temperature Sensor Signal	I	LFX LCV
14	0.5 0.5	VT/GY WH/RD	139 1164	Run/Crank Ignition 1 Voltage Accelerator Pedal Position 5 Volt Reference (1)	I	LCV LFX
15	0.5 0.5	RD/WH YE/WH	140 1161	Battery Positive Voltage Accelerator Pedal Position Signal (1)	I	LCV LFX
16	0.75	VT/L-BU	5290	Powertrain Main Relay Fused Supply (1)	I	LCV
17-20	-	-	-	Not Occupied	-	-
21	0.5	BN/RD	2700	A/C Pressure Sensor 5 Volt Reference	III	LFX
22	0.5	BK/BN	5514	A/C Refrigerant Pressure Sensor Low Reference	III	LFX
23-24	-	-	-	Not Occupied	-	-
25	0.5 0.5	BK/YE L-BU/VT	5382 1589	Brake Position Sensor Low Reference Primary Fuel Level Sensor Signal	I	LCV with MYB LFX
26	0.5 0.5	BK/GY BK/L-GN	6110 6281	Clutch Apply Sensor Low Reference Fuel Level Sensor Low Reference	I	LCV with N8D LFX
27	0.5	BK/VT	1272	Accelerator Pedal Position Low Reference (2)	I	LCV
28	0.5	BK/L-BU	1271	Accelerator Pedal Position Low Reference (1)	I	LCV
29	-	-	-	Not Occupied	-	-
30	0.5	BK/L-BU	1271	Accelerator Pedal Position Low Reference (1)	III	LFX
31	-	-	-	Not Occupied	-	-
32	0.5	WH/GY	459	A/C Compressor Clutch Relay Control	III	LFX
33	0.5 0.5	L-GN/WH BN/RD	1162 1274	Accelerator Pedal Position Signal (2) Accelerator Pedal Position 5 Volt Reference (2)	I	LCV LFX
34	0.5 0.5	L-GN/WH L-GN/WH	492 1162	Mass Air Flow Sensor Signal Accelerator Pedal Position Signal (2)	I	LCV LFX
35-36	-	-	-	Not Occupied	-	-
37	0.5	BN/RD	2700	A/C Pressure Sensor 5 Volt Reference	I	LCV
38	-	-	-	Not Occupied	-	-
39	0.5	L-BU	2500	High Speed GMLAN Serial Data (+) (1)	III	LFX
40	0.5	WH	2501	High Speed GMLAN Serial Data (-) (1)	III	LFX
41	0.5	WH/RD	5381	Brake Position Sensor 5 Volt Reference	I	LCV with MYB
42	0.5	GY/RD	6109	Clutch Apply Sensor Voltage Reference	I	LCV with N8D
43	-	-	-	Not Occupied	-	-
44	0.5 0.5	VT/GY GY	6386 5660	Starter Enable Relay (PPEI 3) Control Fuel Pump Controller Data Out Signal	I	LCV LFX

	0.5	GY	5660	Fuel Pump Controller Data Out Signal		LFX
45	0.5	YE/WH	1161	Accelerator Pedal Position Signal (1)	I	LCV
46	0.5 0.5	YE/BK BN/WH	3000 419	Coolant Temperature Sensor #2 Signal Check Engine Indicator Control	I	LCV LFX
47	0.5 0.5	L-BU/GY WH/RD	636 5381	Outside Ambient Air Temperature Sensor Signal Brake Position Sensor 5 Volt Reference	I	LCV LFX
48	0.5 0.5	WH/L-BU WH/L-GN	6289 5380	Induction Air Temperature Sensor Signal Brake Position Sensor Signal	I	LCV LFX
49	0.5	WH/GY	1786	Transmission Park/Neutral Signal (1)	I	LCV
50	0.5	WH/L-BU	6311	Cruise/ETC/TCC Brake Signal	I	LCV
51	0.75 0.5	VT/L-BU VT/GY	5291 139	Powertrain Main Relay Fused Supply (2) Run/Crank Ignition 1 Voltage	I	LCV LFX
52	0.5 0.5	WH/BK RD/WH	2366 140	Cooling Fan Control Relay Speed Signal Battery Positive Voltage	I	LCV LFX
53	0.5	BK/VT	1272	Accelerator Pedal Position Low Reference (2)	III	LFX
54	0.5	WH/GY	459	A/C Compressor Clutch Relay Control	I	LCV
55-56	-	-	-	Not Occupied	-	-
57	0.5 0.5	L-GN WH/L-BU	380 6311	A/C Refrigerant Pressure Sensor Signal Cruise/ETC/TCC Brake Signal	I	LCV LFX
58	-	-	-	Not Occupied	-	-
59	0.5	WH/BK	2366	Cooling Fan Control Relay Speed Signal	III	LFX
60	0.5	BN/GY	4008	Humidity Sensor Signal	I	LCV
61	0.5	WH/L-GN	5380	Brake Position Sensor Signal	I	LCV
62	0.5 0.75	YE VT/L-BU	6111 5291	Clutch Apply Sensor Signal Powertrain Main Relay Fused Supply (2)	I	LCV LFX
63	0.5	VT/GY	6386	Starter Enable Relay (PPEI 3) Control	III	LFX
64	0.5	GY	5660	Fuel Pump Controller Data Out Signal	I	LCV
65	0.5	WH	1310	EVAP Canister Vent Solenoid Control	I	-
66	0.5	WH	1310	EVAP Canister Vent Solenoid Control	III	-
67	0.5 0.75	YE VT/L-BU	5991 5292	Powertrain Relay Coil Control Powertrain Main Relay Fused Supply (3)	I	LCV LFX
68	0.5	BK/YE	5382	Brake Position Sensor Low Reference	III	LFX
69	0.5	L-BU	6814	Thermostat Engine Cool Control	I	LCV
70	0.5	VT/YE	5985	Accessory Wakeup Serial Data	III	LFX

70	0.5	VT/YE	5985	Accessory Wakeup Serial Data	III	LFX
71	0.5	BN/WH	419	Check Engine Indicator Control	I	LCV
72	-	-	-	Not Occupied	-	-
73	1	VT/L-BU	5290	Powertrain Main Relay Fused Supply (1)	II	-

K20 Engine Control Module X2



Connector Part Information

Harness Type: Engine

OEM Connector: 34566-0103

Service Connector: 88988931

Description: 73-Way F 0.64, 2.8 Series, Sealed (BK with BK Terminal Position Assurance)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	13575812	J-35616-16 (LT GN)	J-38125-213	Not Available	Not Available	Not Available	Not Available
II	13579770	J-35616-35 (VT)	J-38125-11A	Not Available	Not Available	Not Available	Not Available
III	19119374	J-35616-64B (L-BU)	J-38125-12A	Not Available	Not Available	Not Available	Not Available

K20 Engine Control Module X2

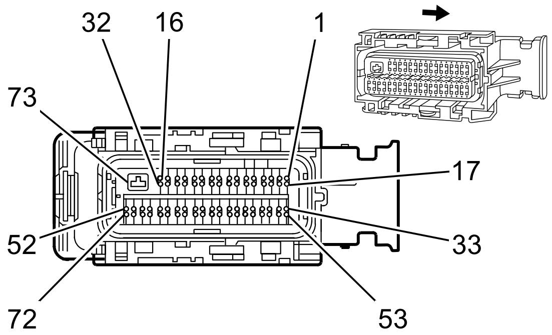
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	-	-	-	Not Occupied	-	-
2	0.5	L-BU	410	Engine Coolant Temperature Sensor Signal	I	LCV
3	0.5	BK/L-GN	2919	Fuel Rail Pressure Sensor Low Reference	III	LFX
4	0.5	BN/RD	7445	Fuel Line Pressure Sensor 5V Reference	I	LCV
5	0.5 0.5	GY/RD L-BU/RD	2704 1688	Manifold Absolute Pressure Sensor 5 Volt Reference 5 Volt Reference	I	LCV LFX
6	0.5	GY/YE	5297	Camshaft Position Exhaust Sensor Supply Voltage (1)	I	LCV
7	0.5	GY/L-BU	5300	Camshaft Position Intake Sensor Supply Voltage (1)	I	LCV
8	0.5	VT/WH	821	Vehicle Speed Sensor Signal	III	LFX
9	0.5	BN/RD	2917	Fuel Rail Pressure Sensor (5) Volt Reference	I	LCV
10	0.5	VT/GY	3110	Heated Oxygen Sensor High Signal Bank 1 Sensor (1)	III	LFX
11	0.5	VT/WH	3210	Heated Oxygen Sensor High Signal Bank 2 Sensor (1)	III	LFX
12	0.5 0.5	BN/RD VT/L-BU	2701 3120	Throttle Position Sensor 5 Volt Reference Heated Oxygen Sensor High Signal Bank 1 Sensor (2)	I	LCV LFX

	0.5	VT/L-BU	3120	Heated Oxygen Sensor High Signal Bank 1 Sensor (2)		LFX
13	0.5	L-BU/WH	3630	Throttle Position Sensor (SENT1) Signal	I	LCV
	0.5	VT/L-GN	3220	Heated Oxygen Sensor High Signal Bank 2 Sensor (2)		LFX
14	0.5	WH/RD	2705	Oil Pressure Sensor 5 Volt Reference	I	LCV
15	0.5	VT/L-BU	6270	Crankshaft 60X Sensor Voltage	I	LCV
	0.5	GY/L-BU	7564	Humidity Sensor Signal		LFX
16	0.5	BN/WH	582	Throttle Actuator Control Close	III	LFX
17	-	-	-	Not Occupied	-	-
18	0.5	BN/RD	2917	Fuel Rail Pressure Sensor (5) Volt Reference	III	LFX
19	0.5	L-BU/WH	2918	Fuel Rail Pressure Sensor Signal	III	LFX
20	0.5	L-BU/WH	7446	Fuel Line Pressure Sensor Signal	I	LCV
21	0.5	BK/L-GN	469	Manifold Absolute Pressure Sensor Low Reference	I	LCV
	0.5	BK/L-GN	822	Vehicle Speed Sensor Low Reference		LFX
22	0.5	BK/GY	5296	Camshaft Position Exhaust Sensor Low Reference (1)	I	LCV
23	0.5	BK/L-GN	5301	Camshaft Position Intake Sensor Low Reference (1)	I	LCV
24	-	-	-	Not Occupied	-	-
25	0.5	BK/L-GN	2919	Fuel Rail Pressure Sensor Low Reference	I	LCV
26	0.5	L-BU/WH	2918	Fuel Rail Pressure Sensor Signal	I	LCV
	0.5	WH/BK	3111	Heated Oxygen Sensor Low Signal Bank 1 Sensor (1)		LFX
27	0.5	YE/WH	3211	Heated Oxygen Sensor Low Signal Bank 2 Sensor (1)	III	LFX
28	0.5	BK/BN	2752	Throttle Position Sensor Low Reference	I	LCV
	0.5	WH/YE	3121	Heated Oxygen Sensor Low Signal Bank 1 Sensor (2)		LFX
29	0.5	YE/BN	331	Oil Pressure Sensor Signal	I	LCV
	0.5	YE/L-BU	3221	Heated Oxygen Sensor Low Signal Bank 2 Sensor (2)		LFX
30	0.5	BK/VT	2755	Oil Pressure Sensor Low Reference	I	LCV
31	0.5	BK/VT	6272	Crankshaft 60X Sensor Low Reference	I	LCV
32	0.5	YE	581	Throttle Actuator Control Open	III	LFX
33	0.5	WH/BK	3111	Heated Oxygen Sensor Low Signal Bank 1 Sensor (1)	I	LCV
34	0.5	WH/YE	3121	Heated Oxygen Sensor Low Signal Bank 1 Sensor (2)	I	LCV
	0.5	BN/RD	2701	Throttle Position Sensor 5 Volt Reference		LFX
35	-	-	-	Not Occupied	-	-
36	0.5	BK/VT	6754	Cam Phaser X Return Low Reference	I	LCV
	0.5	VT/GY	496	Knock Sensor Signal (1)		LFX
37	0.5	BK/BN	6753	Cam Phaser W Return Low Reference	I	LCV
	0.5	WH/GY	1876	Knock Sensor Signal (2)		LFX

	0.5	WH/GY	1876	Knock Sensor Signal (2)		LFX
38	0.5	VT/BK	5273	Camshaft Position Exhaust Sensor (1)	I	LCV
39	0.5	YE/VT	5275	Camshaft Position Intake Sensor (1)	I	LCV
40	0.5	L-GN	6271	Crankshaft 60X Sensor Signal	I	LCV
41	0.5	GY/WH	3113	Heated Oxygen Sensor Heater Low Control Bank 1 Sensor (1)	III	LFX
42	0.5	GY/WH	3122	Heated Oxygen Sensor Heater Low Control Bank 1 Sensor (2)	III	LFX
43	0.5 0.5	BK/BN L-GN/WH	2761 432	Coolant Temperature Sensor Low Reference Manifold Absolute Pressure Sensor Signal	I	LCV LFX
44	0.5 0.5	BK/L-BU GY/RD	2129 2704	Ignition Control Low Reference Bank 1 Manifold Absolute Pressure Sensor 5 Volt Reference	I	LCV LFX
45	0.5	L-GN/L-BU	2123	Ignition Control (3)	I	LCV
46	0.5	L-BU/VT	2121	Ignition Control (1)	I	LCV
47	-	-	-	Not Occupied	-	-
48	0.75	L-BU	4802	Direct Fuel Injector (DFI) High Voltage Control Cylinder 2	I	LCV
49	0.75 0.5	GY/L-BU WH/L-BU	4804 6289	Direct Fuel Injector (DFI) High Voltage Control Cylinder 4 Induction Air Temperature Sensor Signal	I	LCV LFX
50	0.75	L-GN	4803	Direct Fuel Injector (DFI) High Voltage Control Cylinder 3	I	LCV
51	0.75 0.5	BN L-GN/L-BU	4801 428	Direct Fuel Injector (DFI) High Voltage Control Cylinder 1 EVAP Canister Purge Solenoid Control	I	LCV LFX
52	0.5 0.5	YE L-GN/WH	581 492	Throttle Actuator Control Open Mass Air Flow Sensor Signal	I	LCV LFX
53	0.5 0.5	VT/GY L-BU/WH	3110 225	Heated Oxygen Sensor High Signal Bank 1 Sensor (1) Generator Turn On Signal	I	LCV LFX
54	0.5 0.5	VT/L-BU BK/BN	3120 2752	Heated Oxygen Sensor High Signal Bank 1 Sensor (2) Throttle Position Sensor Low Reference	I	LCV LFX
55	0.5	GY	23	Generator Field Duty Cycle Signal	III	LFX
56	0.5 0.5	GY/L-BU BK/YE	5282 1716	Camshaft Phaser Exhaust Solenoid (1) Knock Sensor Low Reference (1)	I	LCV LFX
57	0.5 0.5	VT/BN BK/GY	5284 2303	Camshaft Phaser Intake Solenoid (1) Knock Sensor Low Reference (2)	I	LCV LFX
58	0.5	WH/GY	1786	Transmission Park/Neutral Signal (1)	III	LFX
59	-	-	-	Not Occupied	-	-
60	0.5 0.5	GY/WH BN/L-GN	3122 1174	Heated Oxygen Sensor Heater Low Control Bank 1 Sensor (2) Oil Level Switch Signal	I	LCV LFX
61	0.5	GY/WH	3113	Heated Oxygen Sensor Heater Low Control Bank 1 Sensor (1)	I	LCV

61	0.5 0.5	GY/WH L-GN/YE	3113 3212	Heated Oxygen Sensor Heater Low Control Bank 1 Sensor (1) Heated Oxygen Sensor Heater Low Control Bank 2 Sensor (1)	I	LCV LFX
62	0.5	WH/BN	3223	Heated Oxygen Sensor Heater Low Control Bank 2 Sensor (2)	III	LFX
63	0.5	BK/L-GN	469	Manifold Absolute Pressure Sensor Low Reference	III	LFX
64	0.5	L-BU	179	Oil Pump Command Signal	I	LCV
65	0.5 0.5	L-BU/WH BK/L-BU	2122 61	Ignition Control (2) Outside Ambient Temperature Sensor Low Reference	I	LCV LFX
66	0.5	YE/L-BU	2124	Ignition Control (4)	I	LCV
67	-	-	-	Not Occupied	-	-
68	0.75	L-BU/GY	4902	Direct Fuel Injector (DFI) High Voltage Supply Cylinder 2	I	LCV
69	0.75 0.5	L-BU/WH BK/VT	4904 2760	Direct Fuel Injector (DFI) High Voltage Supply Cylinder 4 Intake Air Temperature Sensor Low Reference	I	LCV LFX
70	0.75 0.5	L-GN/GY L-BU/WH	4903 3630	Direct Fuel Injector (DFI) High Voltage Supply Cylinder 3 Throttle Position Sensor (SENT1) Signal	I	LCV LFX
71	0.75	BN/WH	4901	Direct Fuel Injector (DFI) High Voltage Supply Cylinder 1	I	LCV
72	0.5	BN/WH	582	Throttle Actuator Control Close	I	LCV
73	2.5	BK/WH	1451	Signal Ground	II	-

K20 Engine Control Module X3



Connector Part Information

Harness Type: Engine

OEM Connector: 34566-0203

Service Connector: 88988372

Description: 73-Way F 0.64, 2.8 Series, Sealed (BK with GY Terminal Position Assurance)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	13575812	J-35616-16 (LT GN)	J-38125-213	Not Available	Not Available	Not Available	Not Available
II	13579770	J-35616-35 (VT)	J-38125-11A	Not Available	Not Available	Not Available	Not Available
III	19119374	J-35616-64B (L-BU)	J-38125-12A	Not Available	Not Available	Not Available	Not Available

K20 Engine Control Module X3

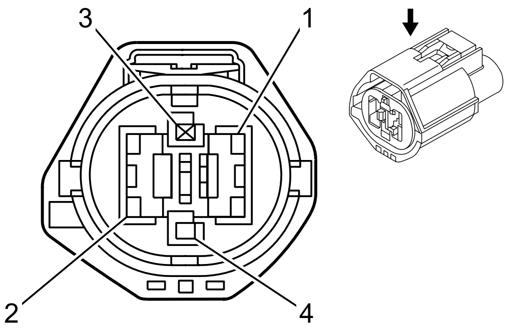
Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	YE/BN	331	Oil Pressure Sensor Signal	III	LFX
2	0.5	WH/RD	2705	Oil Pressure Sensor 5 Volt Reference	III	LFX
3	-	-	-	Not Occupied	-	-
4	0.5	L-GN/L-BU	428	EVAP Canister Purge Solenoid Control	I	LCV
5-7	-	-	-	Not Occupied	-	-
8	0.5 0.5	YE/RD L-BU	2709 410	Fuel Tank Pressure Sensor 5 Volt Reference Engine Coolant Temperature Sensor Signal	I	LCV LFX
9	-	-	-	Not Occupied	-	-
10	0.5	VT/L-BU	6270	Crankshaft 60X Sensor Voltage	III	LFX
11	0.5	L-BU/RD	1688	5 Volt Reference	I	LCV
12	-	-	-	Not Occupied	-	-
13	0.5	BN/L-BU	2126	Ignition Control (6)	III	LFX
14	0.5 0.5	WH/RD L-BU/GY	3201 2125	Throttle Inlet Absolute Pressure Sensor 5V Reference Ignition Control (5)	I	LCV LFX

15	0.5	BK/GY	2130	Ignition Control Low Reference Bank 2	III	LFX
16	0.5 0.5	VT/L-BU YE	5293 7301	Powertrain Main Relay Fused Supply (4) High Pressure Fuel Pump Actuator High - Control	I	LCV LFX
17	0.5	BK/VT	2755	Oil Pressure Sensor Low Reference	III	LFX
18	0.5	L-BU/WH	225	Generator Turn On Signal	I	LCV
19	0.5	GY	23	Generator Field Duty Cycle Signal	I	LCV
20	0.5	BK/L-GN	6281	Fuel Level Sensor Low Reference	I	LCV
21-23	-	-	-	Not Occupied	-	-
24	0.5	BK/BN	2761	Coolant Temperature Sensor Low Reference	III	LFX
25	0.5	BK/VT	6272	Crankshaft 60X Sensor Low Reference	III	LFX
26	0.5	L-GN	6271	Crankshaft 60X Sensor Signal	III	LFX
27	0.5 0.5	BK/L-GN YE/L-BU	822 2124	Vehicle Speed Sensor Low Reference Ignition Control (4)	I	LCV LFX
28	0.5	L-GN/L-BU	2123	Ignition Control (3)	III	LFX
29	0.5	L-BU/WH	2122	Ignition Control (2)	III	LFX
30	0.5	L-BU/VT	2121	Ignition Control (1)	III	LFX
31	0.5	BK/L-BU	2129	Ignition Control Low Reference Bank 1	III	LFX
32	0.5	VT/BK	7300	High Pressure Fuel Pump Actuator Low - Control	III	LFX
33	0.5	YE/VT	5275	Camshaft Position Intake Sensor (1)	III	LFX
34	0.5	GY/L-BU	5300	Camshaft Position Intake Sensor Supply Voltage (1)	III	LFX
35	0.5	VT/BK	5273	Camshaft Position Exhaust Sensor (1)	III	LFX
36	0.5	YE	5276	Camshaft Position Intake Sensor (2)	III	LFX
37	0.5	WH/L-BU	5302	Camshaft Position Intake Sensor Supply Voltage (2)	III	LFX
38	0.5	VT/L-BU	5274	Camshaft Position Exhaust Sensor (2)	III	LFX
39	0.5	VT/BN	5284	Camshaft Phaser Intake Solenoid (1)	III	LFX
40	0.5 0.5	L-GN/WH GY/L-BU	432 5282	Manifold Absolute Pressure Sensor Signal Camshaft Phaser Exhaust Solenoid (1)	I	LCV LFX
41	0.5 0.5	BN/L-GN L-GN	1174 5272	Oil Level Switch Signal Camshaft Phaser Intake Solenoid (2)	I	LCV LFX
42	0.5	L-GN/BN	5283	Camshaft Phaser Exhaust Solenoid (2)	III	LFX
43	0.5	L-BU/VT	1589	Primary Fuel Level Sensor Signal	I	LCV
44-45	-	-	-	Not Occupied	-	-

44-45	-	-	-	Not Occupied	-	-
46	0.5 0.75	YE/WH GY/L-BU	3200 4804	Throttle Inlet Absolute Pressure Sensor Signal Direct Fuel Injector (DFI) High Voltage Control Cylinder 4	I	LCV LFX
47	0.75	WH/L-GN	4805	Direct Fuel Injector (DFI) High Voltage Control Cylinder 5	III	LFX
48	0.75	L-BU	4802	Direct Fuel Injector (DFI) High Voltage Control Cylinder 2	III	LFX
49	-	-	-	Not Occupied	-	-
50	0.75	L-GN	4803	Direct Fuel Injector (DFI) High Voltage Control Cylinder 3	III	LFX
51	0.75	VT/L-GN	4806	Direct Fuel Injector (DFI) High Voltage Control Cylinder 6	III	LFX
52	0.5 0.75	VT/BK BN	7300 4801	High Pressure Fuel Pump Actuator Low - Control Direct Fuel Injector (DFI) High Voltage Control Cylinder 1	I	LCV LFX
53	0.5	BK/L-GN	5301	Camshaft Position Intake Sensor Low Reference (1)	III	LFX
54	0.5	GY/YE	5297	Camshaft Position Exhaust Sensor Supply Voltage (1)	III	LFX
55	0.5 0.5	GY BK/GY	3890 5296	Aero Shutter Control 2 Camshaft Position Exhaust Sensor Low Reference (1)	I	LCV LFX
56	0.5	BK/VT	5303	Camshaft Position Intake Sensor Low Reference (2)	III	LFX
57	0.5	L-GN/BN	5298	Camshaft Position Exhaust Sensor Supply Voltage (2)	III	LFX
58	0.5	BK/BN	5299	Camshaft Position Exhaust Sensor Low Reference (2)	III	LFX
59	0.5 0.5	BK/GY BK/BN	2303 6753	Knock Sensor Low Reference (2) Cam Phaser W Return Low Reference	I	LCV LFX
60	0.5 0.5	WH/GY BK/VT	1876 6754	Knock Sensor Signal (2) Cam Phaser X Return Low Reference	I	LCV LFX
61	0.5 0.5	BK/YE BK/L-BU	1716 6755	Knock Sensor Low Reference (1) Cam Phaser Y Return Low Reference	I	LCV LFX
62	0.5 0.5	VT/GY BK/GY	496 6756	Knock Sensor Signal (1) Cam Phaser Z Return Low Reference	I	LCV LFX
63	0.5	VT/WH	821	Vehicle Speed Sensor Signal	I	LCV
64-65	-	-	-	Not Occupied	-	-
66	0.75	L-BU/WH	4904	Direct Fuel Injector (DFI) High Voltage Supply Cylinder 4	III	LFX
67	0.5 0.75	L-GN/WH L-GN/WH	5007 4905	Reverse Switch Signal Direct Fuel Injector (DFI) High Voltage Supply Cylinder 5	I	LCV LFX
68	0.5 0.75	L-BU/WH L-BU/GY	890 4902	Fuel Tank Pressure Sensor Signal Direct Fuel Injector (DFI) High Voltage Supply Cylinder 2	I	LCV LFX
69	-	-	-	Not Occupied	-	-
70	0.75	L-GN/GY	4903	Direct Fuel Injector (DFI) High Voltage Supply Cylinder 3	III	LFX
71	0.75	VT/GY	4906	Direct Fuel Injector (DFI) High Voltage Supply Cylinder 6	III	LFX

71	0.75	VT/GY	4906	Direct Fuel Injector (DFI) High Voltage Supply Cylinder 6	III	LFX
72	0.5	YE	7301	High Pressure Fuel Pump Actuator High - Control	I	LCV
	0.75	BN/WH	4901	Direct Fuel Injector (DFI) High Voltage Supply Cylinder 1		LFX
73	2.5	BK/WH	1451	Signal Ground	II	LCV
	2.5	BK/WH	1451	Signal Ground		LFX

K22 Cooling Fan Control Module X1



Connector Part Information

Harness Type: Forward Lamp

OEM Connector: 7287-1404-10

Service Connector: Service by Harness – See Part Catalog

Description: 4-Way F 1.5, 9.5 Series, Sealed (BK)

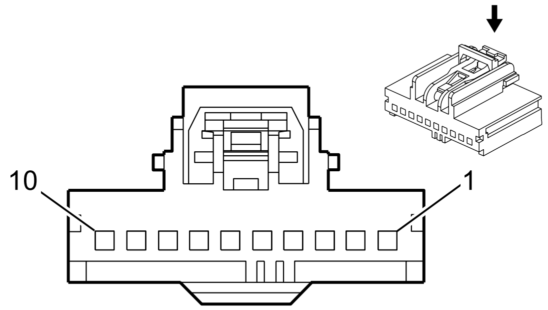
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-64B (LT BU)	Not Available	Not Available	Not Available	Not Available	Not Available
II	Not Available	J-35616-22 (RD)	Not Available	Not Available	Not Available	Not Available	Not Available
III	Not Available	J-35616-2A (GY)	Not Available	Not Available	Not Available	Not Available	Not Available

K22 Cooling Fan Control Module X1

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	6	BK	1350	Ground	I	LCV
	10	BK	1350	Ground		LFX
2	6	RD/GY	4840	Battery Positive Voltage	I	LCV
	10	RD/GY	4840	Battery Positive Voltage		LFX
3	-	-	-	Not Occupied	-	-
4	0.5	WH/BK	2366	Cooling Fan Control Relay Speed Signal	III	-

K29 Seat Heating Control Module X1 (KA1)



Connector Part Information

Harness Type: Passenger Seat Cushion

OEM Connector: 7283-9088-30

Service Connector: 89047355

Description: 10-Way F 0.64 Kaizen Series (BK)

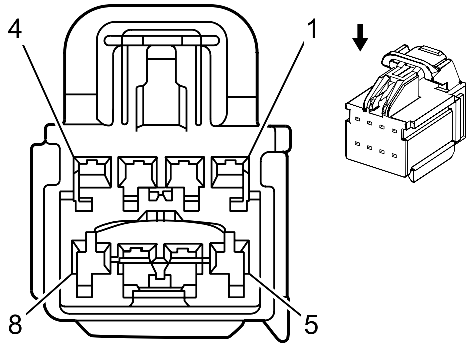
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	13575299	J-35616-64B (L-BU)	J-38125-215A	Not Available	Not Available	P	P

K29 Seat Heating Control Module X1 (KA1)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	-	-	-	Not Occupied	-	-
2	0.35	L-GN/L-BU	6133	Linear Interconnect Network Bus 2	I	-
3-10	-	-	-	Not Occupied	-	-

K29 Seat Heating Control Module X2 (KA1)



Connector Part Information

Harness Type: Passenger Seat Cushion

OEM Connector: 7283-3441-40

Service Connector: 19153166

Description: 8-Way F 1.5 Kaizen YESC Series (L-GY)

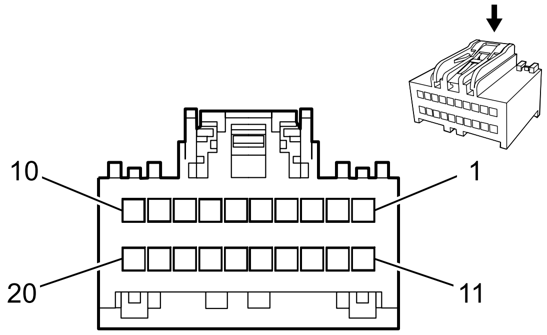
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	13575299	J-35616-64B (L-BU)	J-38125-215A	Not Stocked in Kit	Not Available	P	P

K29 Seat Heating Control Module X2 (KA1)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	-	-	-	Not Occupied	-	-
2	.75	RD/L-GN	6140	Battery Positive Voltage	I	-
3	.75	RD/L-GN	5140	Battery Positive Voltage	I	-
4	0.75	BN/VT	2077	Driver Heated Seat Element Supply Voltage	I	-
5	0.75	BN/L-BU	2479	Passenger Heated Seat Element Supply Voltage	I	-
6	0.75	WH/BN	2481	Passenger Heated Back Element Supply Voltage	I	-
7	.75	BK	3850	Ground	I	-
8	0.75	BN	2432	Driver Heated Back Element Supply Voltage	I	-

K33 HVAC Control Module X1



Connector Part Information

Harness Type: Instrument Panel

OEM Connector: 31410-1203

Service Connector: 13576644

Description: 20-Way F 0.64 Series (GN with WH Terminal Position Assurance)

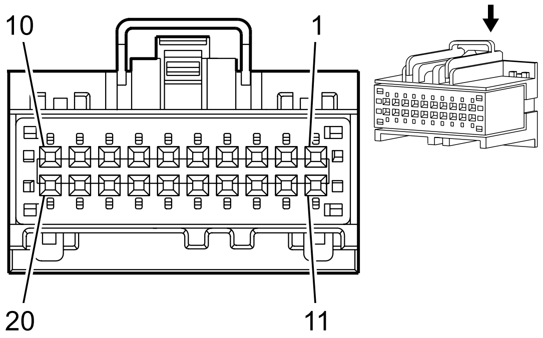
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	13575845	J-35616-64B (L-BU)	J-38125-215A	Not Available	Not Available	Not Available	Not Available

K33 HVAC Control Module X1

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	-	-	-	Not Occupied	-	-
2	0.35	GY/L-GN	7565	Windscreen Temp Sensor Signal	I	-
3	-	-	-	Not Occupied	-	-
4	0.35	L-BU/WH	734	Inside Air Temperature Sensor Signal	I	-
5	0.35	YE/L-BU	3197	Humidity Temperature Sensor Signal	I	-
6	0.35	YE/RD	597	5 Volt Reference	I	-
7	0.35	BK/L-BU	7566	Humidity/Windscreen Temp Sensor Low Reference	I	-
8-11	-	-	-	Not Occupied	-	-
12	0.35	GY/L-BU	7564	Humidity Sensor Signal	I	-
13	-	-	-	Not Occupied	-	-
14	0.35	YE/VT	1783	Twilight Sentinel Delay Signal	I	-
15-17	-	-	-	Not Occupied	-	-
18	0.5	BN	518	Lower Left Air Temperature Sensor Signal	I	-
19-20	-	-	-	Not Occupied	-	-

K33 HVAC Control Module X2



Connector Part Information

- Harness Type: Instrument Panel
- OEM Connector: 31410-1202
- Service Connector: 15126709
- Description: 20-Way F 64 Series, Sealed (BN)

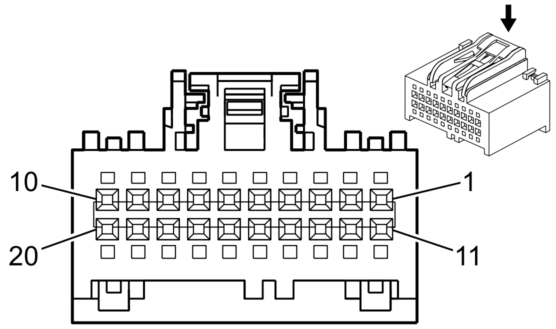
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	13575867	J-35616-64B (L-BU)	J-38125-215A	Not Available	Not Available	Not Available	Not Available

K33 HVAC Control Module X2

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	RD/VT	3340	Battery Positive Voltage	I	-
2	0.35	L-GN	5060	Low Speed GMLAN Serial Data	I	-
3	-	-	-	Not Occupied	-	-
4	0.35	L-GN/YE	7531	Linear Interconnect Network Bus 9	I	-
5-7	-	-	-	Not Occupied	-	-
8	0.5	BK	2050	Ground	I	-
9	0.35	VT/GY	539	Run/Crank Ignition 1 Voltage	I	-
10	0.5	L-BU/YE	7574	Electric Variable Displacement Control	I	-
11	0.5	L-BU/BN	7573	Electric Variable Displacement Supply	I	-
12-14	-	-	-	Not Occupied	-	-
15	0.35	L-BU/GY	754	Blower Motor Speed Control	I	-
16-17	-	-	-	Not Occupied	-	-
18	0.35	BK/YE	1791	Air Temperature Door Control Low Reference	I	-
19	0.35	BN/VT	193	Rear Defog Relay Control	I	-
20	-	-	-	Not Occupied	-	-

K33 HVAC Control Module X3



Connector Part Information

Harness Type: HVAC

OEM Connector: 15126711

Service Connector: 15126711

Description: 20-Way F 0.64 Series (BK with WH Terminal Position Assurance)

Terminal Part Information

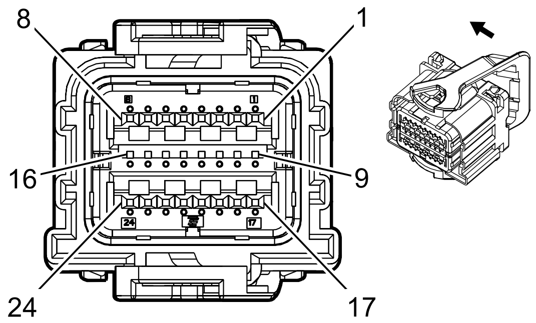
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	13327119	J-35616-64B (L-BU)	J-38125-215A	SAIT-A03T-M064	14	P	P

K33 HVAC Control Module X3

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	BN	516	Upper Left Air Temperature Sensor Signal	I	-
2	0.35	YE	3165	Mode Door Stepper Motor Control (1)	I	-
3	0.35	WH/RD	3166	Mode Door Stepper Motor Control (2)	I	-
4	0.35	GY/BN	3167	Mode Door Stepper Motor Control (3)	I	-
5	0.35	L-GN/WH	3168	Mode Door Stepper Motor Control (4)	I	-
6-8	-	-	-	Not Occupied	-	-
9	0.35	BK/YE	407	Low Reference	I	-
10	-	-	-	Not Occupied	-	-
11	0.35	L-GN	3169	Temp Door Stepper Motor Control (1)	I	-
12	0.35	WH/PK	3170	Temp Door Stepper Motor Control (2)	I	-
13	0.35	GY/RD	3171	Temp Door Stepper Motor Control (3)	I	-
14	0.35	RD/BK	3172	Temp Door Stepper Motor Control (4)	I	-
15	0.8	BK	7572	HVAC Motor Supply Voltage	I	-
16	0.35	GY	3173	Air Inlet Door Stepper Motor Control (1)	I	-
17	0.35	L-BU/WH	3174	Air Inlet Door Stepper Motor Control (2)	I	-

18	0.35	BN/L-GN	3175	Air Inlet Door Stepper Motor Control (3)	I	-
19	0.35	RD/L-GN	3176	Air Inlet Door Stepper Motor Control (4)	I	-
20	0.35	GY	6137	EVAP Core Temperature Sensor Signal	I	-

K36 Inflatable Restraint Sensing and Diagnostic Module X1



Connector Part Information

Harness Type: Instrument Panel

OEM Connector: 2098923-7

Service Connector: 13579298

Description: 24-Way F 0.64 Series, Sealed (YE)

Terminal Part Information

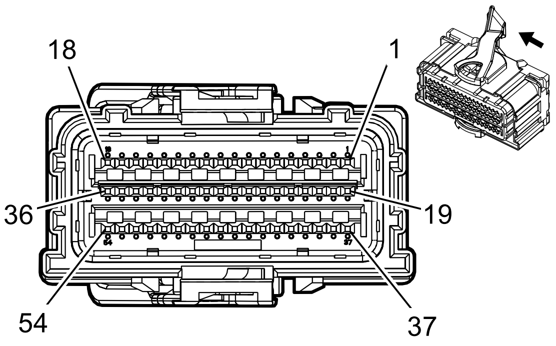
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	19303554	J-35616-64B (L-BU)	J-38125-215A	Not Available	Not Available	Not Available	Not Available

K36 Inflatable Restraint Sensing and Diagnostic Module X1

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	OG/L-GN	3023	Steering Wheel Module Stage 2 High Control	I	-
2	0.35	WH/OG	3022	Steering Wheel Module Stage 2 Low Control	I	-
3	0.35	BN/OG	3020	Steering Wheel Module Stage 1 Low Control	I	-
4	0.35	OG/VT	3021	Steering Wheel Module Stage 1 High Control	I	-
5	0.35	YE/OG	3025	Passenger IP Module Stage 1 High Control	I	-
6	0.35	OG/WH	3024	Passenger IP Module Stage 1 Low Control	I	-
7	0.35	OG/VT	3026	Passenger IP Module Stage 2 Low Control	I	-
8	0.35	GY/OG	3027	Passenger IP Module Stage 2 High Control	I	-
9	0.5	RD/L-GN	4440	Battery Positive Voltage	I	-
10	0.35	VT/WH	5234	Passenger Seat Belt Indicator	I	-
11	0.35	L-BU	2307	Passenger Air Bag On Indicator Control	I	-
12	0.35	L-GN	2308	Passenger Air Bag Off Indicator Control	I	-
13-14	-	-	-	Not Occupied	-	-
15	0.5	L-GN	5060	Low Speed GMLAN Serial Data	I	-
16	-	-	-	Not Occupied	-	-

17	0.5	WH/L-BU	5986	Serial Data Communication Enable	I	-
18	0.5	L-BU/YE	6105	High Speed GMLAN Serial Data (+) (2)	I	-
19	0.5	BK/WH	2251	Signal Ground	I	-
20	0.5	WH	6106	High Speed GMLAN Serial Data (-) (2)	I	-
21-24	-	-	-	Not Occupied	-	-

K36 Inflatable Restraint Sensing and Diagnostic Module X2



Connector Part Information

Harness Type: Body

OEM Connector: 2098922-9

Service Connector: 19301526

Description: 54-Way F 0.64 Series, Sealed (YE)

Terminal Part Information

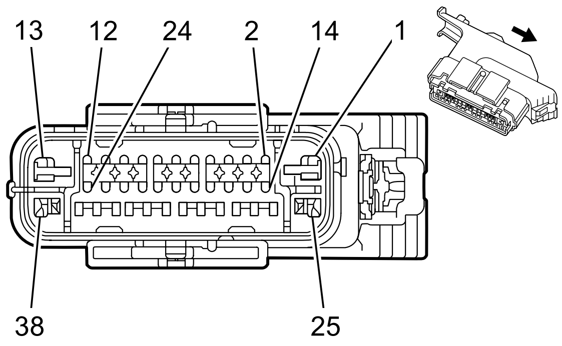
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	19329748	J-35616-64B (LT BU)	J-38125-12A	Not Available	Not Available	Not Available	Not Available

K36 Inflatable Restraint Sensing and Diagnostic Module X2

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1-8	-	-	-	Not Occupied	-	-
9	0.35	OG/YE	3481	Driver Seat Belt Anchor Pretensioner High Control	I	-
10	0.35	YE/OG	3482	Driver Seat Belt Anchor Pretensioner Low Control	I	-
11	0.35	GY/OG	3480	Passenger Seat Belt Anchor Pretensioner Low Control	I	-
12	0.35	OG/BN	3479	Passenger Seat Belt Anchor Pretensioner High Control	I	-
13	0.35	OG/L-BU	3068	Driver Side Impact Module High Control	I	-
14	0.35	L-GN/OG	3069	Driver Side Impact Module Low Control	I	-
15	0.35	BN/OG	3067	Passenger Side Impact Module Low Control	I	-
16	0.35	OG/GY	3066	Passenger Side Impact Module High Control	I	-
17	0.5	OG/L-GN	5019	Left Front Head Curtain Module High Control	I	-
18	0.5	VT/OG	5020	Left Front Head Curtain Module Low Control	I	-
19	0.35	OG/L-GN	2132	Left Front Side Impact Sensing Module Signal	I	-
20	0.35	BK/OG	6628	Left Front Side Impact Sensing Module Low Reference	I	-
21	0.35	BK/OG	6629	Right Front Side Impact Sensing Module Low Reference	I	-
22	0.35	BN/OG	2134	Right Front Side Impact Sensing Module Signal	I	-

23	0.5	OG/YE	354	Left Front Discriminating Sensor Signal	I	-
24	0.5	BK/OG	5045	Left Front Discriminating Sensor Low Reference	I	-
25	0.5	BK/OG	5600	Right Front Discriminating Sensor Low Reference	I	-
26	0.5	OG/L-GN	1409	Right Front Discriminating Sensor Signal	I	-
27	0.35	OG/L-BU	6620	Left Middle Side Impact Sensing Module Signal	I	-
28	0.35	BK/OG	6621	Left Middle Side Impact Sensing Module Low Reference	I	-
29	0.35	BK/OG	6625	Right Middle Side Impact Sensing Module Low Reference	I	-
30	0.35	OG/VT	6624	Right Middle Side Impact Sensing Module Signal	I	-
31-36	-	-	-	Not Occupied	-	-
37	0.35	OG/WH	3477	Driver Seat Belt Retractor Pretensioner High Control	I	-
38	0.35	GY/OG	3478	Driver Seat Belt Retractor Pretensioner Low Control	I	-
39	0.35	WH/OG	3476	Passenger Seat Belt Retractor Pretensioner Low Control	I	-
40	0.35	OG/L-GN	3475	Passenger Seat Belt Retractor Pretensioner High Control	I	-
41	0.35	OG/BN	238	Driver Seat Belt Switch Signal	I	-
42	-	-	-	Not Occupied	-	-
43	0.35	BK/OG	1363	Driver Seat Belt Switch Low Reference	I	-
44	0.35	BK/OG	1361	Passenger Seat Belt Switch Low Reference	I	-
45	0.35	OG/VT	1362	Passenger Seat Belt Switch Signal	I	-
46-52	-	-	-	Not Occupied	-	-
53	0.5	OG/GY	5021	Right Front Head Curtain Module High Control	I	-
54	0.5	WH/OG	5022	Right Front Head Curtain Module Low Control	I	-

K38 Chassis Control Module



Connector Part Information

Harness Type: Chassis

OEM Connector: 89047375

Service Connector: 19178089

Description: 38-Way F 0.64, 280 GT Series, Sealed (BK)

Terminal Part Information

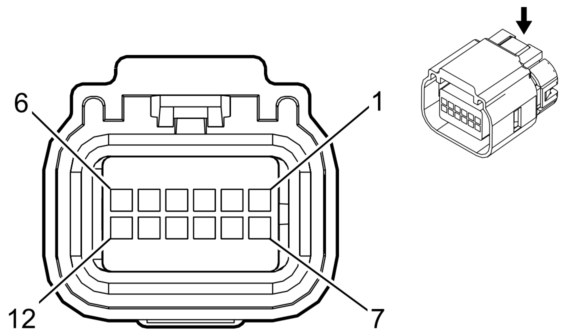
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	13578903	J-35616-4A (PU)	J-38125-553	Not Available	Not Available	Not Available	Not Available
II	13578924	J-35616-64B (L-BU)	J-38125-215A	Not Available	Not Available	Not Available	Not Available
III	13579766	J-35616-64B (L-BU)	J-38125-215A	Not Available	Not Available	Not Available	Not Available

K38 Chassis Control Module

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	2.5 2.5	RD/VT RD/VT	1940 1940	Battery Positive Voltage Battery Positive Voltage	I	LFX
2	-	-	-	Not Occupied	-	-
3	0.5 0.5	BN BN	3891 3891	Aero Shutter Control Aero Shutter Control	II	LFX
4	-	-	-	Not Occupied	-	-
5	0.5 0.5	L-BU L-BU	2500 2500	High Speed GMLAN Serial Data (+) (1) High Speed GMLAN Serial Data (+) (1)	II	LFX
6	0.5 0.5	L-BU L-BU	2500 2500	High Speed GMLAN Serial Data (+) (1) High Speed GMLAN Serial Data (+) (1)	II	LFX
7	-	-	-	Not Occupied	-	-
8	0.5 0.5	VT/YE VT/YE	5985 5985	Accessory Wakeup Serial Data Accessory Wakeup Serial Data	II	LFX
9	-	-	-	Not Occupied	-	-
10	0.5	L-BU/WH	7446	Fuel Line Pressure Sensor Signal	II	LFX

	0.5	L-BU/WH	7446	Fuel Line Pressure Sensor Signal		
11	-	-	-	Not Occupied	-	-
12	0.5 0.5	BN BN	3891 3891	Aero Shutter Control Aero Shutter Control	II	LFX
13	2.5 2.5	GY GY	120 120	Fuel Pump Supply Voltage Fuel Pump Supply Voltage	I	LFX
14-16	-	-	-	Not Occupied	-	-
17	0.5 0.5	WH WH	2501 2501	High Speed GMLAN Serial Data (-) (1) High Speed GMLAN Serial Data (-) (1)	II	LFX
18	0.5 0.5	WH WH	2501 2501	High Speed GMLAN Serial Data (-) (1) High Speed GMLAN Serial Data (-) (1)	II	LFX
19	-	-	-	Not Occupied	-	-
20	0.5 0.5	GY GY	5660 5660	Fuel Pump Controller Data Out Signal Fuel Pump Controller Data Out Signal	II	LFX
21	0.75 0.75	VT/GY VT/GY	139 139	Run/Crank Ignition 1 Voltage Run/Crank Ignition 1 Voltage	III	LFX
22	0.5 0.5	BN/RD BN/RD	7445 7445	Fuel Line Pressure Sensor 5V Reference Fuel Line Pressure Sensor 5V Reference	II	LFX
23	0.5 0.5	BK/YE BK/YE	7447 7447	Fuel Line Pressure Sensor Low Reference Fuel Line Pressure Sensor Low Reference	II	LFX
24	0.5 0.5	BK BK	7444 7444	Fuel System Control Module Shield Fuel System Control Module Shield	II	LFX
25	2.5 2.5	BK BK	650 650	Ground Ground	I	LFX
26-37	-	-	-	Not Occupied	-	-
38	2.5 2.5	BK/L-GN BK/L-GN	1580 1580	Fuel Pump Low Reference Fuel Pump Low Reference	I	LFX

K43 Power Steering Control Module X1



Connector Part Information

Harness Type: Electric Power Steering

OEM Connector: 13678638

Service Connector: Service by Harness - See Part Catalog

Description: 12-Way F 1.2 OCS Series, Sealed (BK)

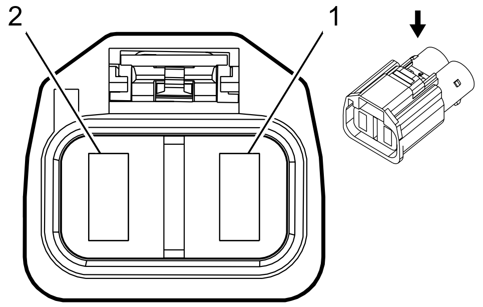
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-64B (L-BU)	Not Available	Not Available	Not Available	Not Available	Not Available

K43 Power Steering Control Module X1

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	RD/BN	5940	Battery Positive Voltage	I	-
2	0.5	WH/L-BU	5986	Serial Data Communication Enable	I	-
3	0.5	L-BU/YE	6105	High Speed GMLAN Serial Data (+) (2)	I	-
4	0.5	WH	6106	High Speed GMLAN Serial Data (-) (2)	I	-
5	0.5	L-BU/YE	6105	High Speed GMLAN Serial Data (+) (2)	I	-
6	0.5	WH	6106	High Speed GMLAN Serial Data (-) (2)	I	-
7	0.5	BK	7	Vehicle Wake-Up Voltage	I	-
8	0.5	L-BU	2500	High Speed GMLAN Serial Data (+) (1)	I	-
9	0.5	WH	2501	High Speed GMLAN Serial Data (-) (1)	I	-
10	0.5	L-BU	2500	High Speed GMLAN Serial Data (+) (1)	I	-
11	0.5	WH	2501	High Speed GMLAN Serial Data (-) (1)	I	-
12	0.5	BK	12	Headlamp Low Beam Supply Voltage	I	-

K43 Power Steering Control Module X2



Connector Part Information

Harness Type: Electric Power Steering

OEM Connector: 13581053

Service Connector: Service by Harness - See Part Catalog

Description: 2-Way F 9.5 Series, Sealed (BK)

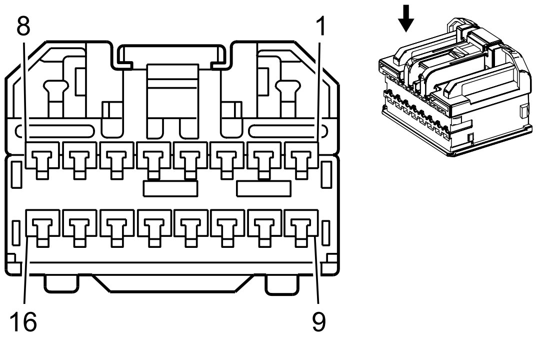
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-64B (L-BU)	Not Available	Not Available	Not Available	Not Available	Not Available

K43 Power Steering Control Module X2

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	10	BK	1050	Ground	I	-
2	10	RD/VT	842	Battery Positive Voltage	I	-

K69 Transfer Case Control Module X1 (NQ6/NQ7)



Connector Part Information

Harness Type: Body

OEM Connector: 6098-5237

Service Connector: 88988778

Description: 16-Way F 1.5 Series (GY)

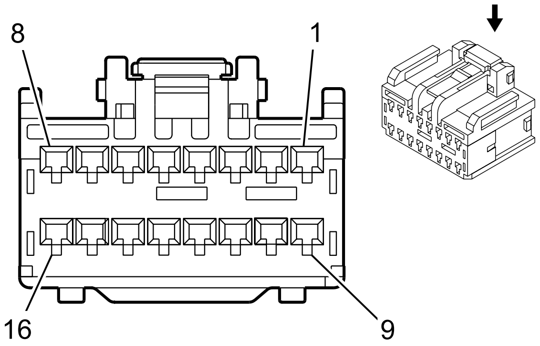
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	13575855	J-35616-2A (GY)	J-38125-553	Not Available	Not Available	Not Available	Not Available
II	13575580	J-35616-2A (GY)	J-38125-553	Not Available	Not Available	Not Available	Not Available

K69 Transfer Case Control Module X1 (NQ6/NQ7)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	YE/BK	7478	Rotary Position Sensor Return	I	-
2	0.5	WH/L-GN	7479	Rotary Position Sensor Signal	I	-
3	0.5	YE	7474	Incremental Encoder Direction Signal	I	-
4	0.5	GY/BK	1570	Front Axle Actuator Control	I	-
5	0.5	L-BU/GY	7473	Incremental Encoder Impulse Signal	I	-
6	0.35	GY/RD	6029	Four Wheel Drive Mode Switch 5 Volt Reference	I	-
7	0.35	L-BU/YE	1693	Four Wheel Drive Switch Signal	I	-
8	-	-	-	Not Occupied	-	-
9	0.5	WH/RD	7477	Rotary Position Sensor Supply 5V	I	-
10	0.5	WH/L-GN	7475	Incremental Encoder Sensor (8V) Supply	I	-
11	0.5	VT	7476	Incremental Encoder Sensor Return	I	-
12	0.5	YE/WH	1695	Four Wheel Drive Wheel Lock Indicator	I	-
13	1	YE/BN	1569	Transfer Case Lock Solenoid Control	II	-
14-16	-	-	-	Not Occupied	-	-

K69 Transfer Case Control Module X2 (NQ6/NQ7)



Connector Part Information

Harness Type: Body

OEM Connector: 6098-4611

Service Connector: 15134091

Description: 16-Way F 1.5 Series (BK)

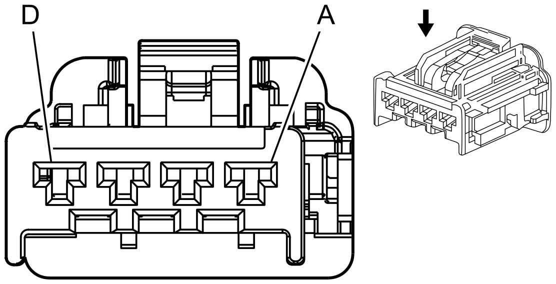
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	13575855	J-35616-2A (GY)	J-38125-553	Not Available	Not Available	Not Available	Not Available

K69 Transfer Case Control Module X2 (NQ6/NQ7)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1-2	-	-	-	Not Occupied	-	-
3	0.35	VT/WH	1565	4 LO Indicator Control	I	-
4	0.35	VT/L-GN	1739	Run/Crank Ignition 1 Voltage	I	-
5	-	-	-	Not Occupied	-	-
6	0.35	VT/YE	5985	Accessory Wakeup Serial Data	I	-
7	0.5	L-BU	2500	High Speed GMLAN Serial Data (+) (1)	I	-
8	0.5	WH	2501	High Speed GMLAN Serial Data (-) (1)	I	-
9-10	-	-	-	Not Occupied	-	-
11	0.35	GY/L-GN	1561	AWD Indicator Control	I	-
12	0.35	BN	1560	Neutral Indicator Control	I	-
13	0.35	L-GN/BK	1563	2 HI Indicator Control	I	-
14	0.35	BN/BK	1566	4 HI Indicator Control	I	-
15	0.5	L-BU	2500	High Speed GMLAN Serial Data (+) (1)	I	-
16	0.5	WH	2501	High Speed GMLAN Serial Data (-) (1)	I	-

K69 Transfer Case Control Module X3 (NQ6/NQ7)



Connector Part Information

Harness Type: Body

OEM Connector: 15466671

Service Connector: 19149301

Description: 4-Way F 280 GT Series (L-GY)

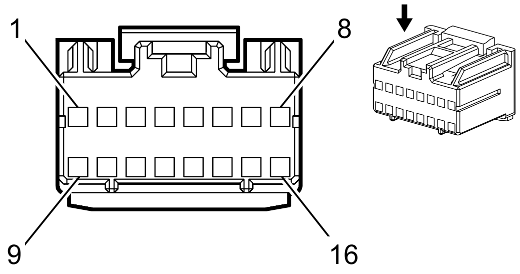
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-4A (PU)	Not Available	Not Available	Not Available	Not Available	Not Available

K69 Transfer Case Control Module X3 (NQ6/NQ7)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	2.5	YE/VT	1553	Transfer Case Motor Counter Clockwise Control	I	-
B	2.5	YE/GY	1552	Transfer Case Motor Clockwise Control	I	-
C	2.5	RD/GY	1342	Battery Positive Voltage	I	-
D	2.5	BK	3250	Ground	I	-

K73 Telematics Communication Interface Control Module X1 (UE1)



Connector Part Information

- Harness Type: Body
- OEM Connector: 1456601-1
- Service Connector: 19153138
- Description: 16-Way F Multilock 040 II Series (WH)

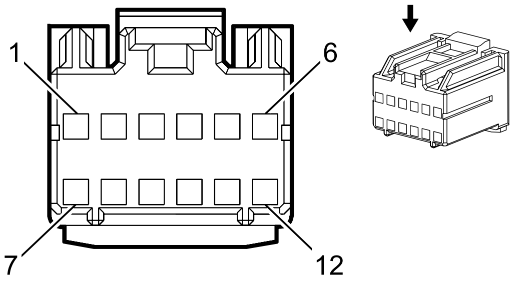
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	13575740	J-35616-16 (L-GN)	J-38125-559	Not Available	Not Available	Not Available	Not Available
II	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available

K73 Telematics Communication Interface Control Module X1 (UE1)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	L-GN	5060	Low Speed GMLAN Serial Data	I	-
2	0.35	BN/WH	2517	Keypad Red LED	II	-
3	0.35	YE/VT	2516	Keypad Green LED	II	-
4-5	-	-	-	Not Occupied	-	-
6	0.35	L-GN/BK	2515	Keypad Supply Voltage	II	-
7	0.5	BK/WH	2051	Signal Ground	I	-
8-9	-	-	-	Not Occupied	-	-
10	0.5	L-BU	2500	High Speed GMLAN Serial Data (+) (1)	I	-
11	0.35	L-GN/WH	2514	Keypad Signal	II	-
12	0.5	WH	2501	High Speed GMLAN Serial Data (-) (1)	I	-
13	0.5	BK/VT	5167	Battery Backup Low Reference	I	-
14	0.5	YE/VT	5235	Battery Backup Supply Voltage	I	-
15	0.35	RD/L-BU	3240	Battery Positive Voltage	II	-
16	-	-	-	Not Occupied	-	-

K73 Telematics Communication Interface Control Module X2 (UE1)



Connector Part Information

Harness Type: Body

OEM Connector: 1456599-1

Service Connector: 88952886

Description: 12-Way F Multilock 040 II Series (WH)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available
II	13575740	J-35616-16 (L-GN)	J-38125-559	Not Available	Not Available	Not Available	Not Available

K73 Telematics Communication Interface Control Module X2 (UE1)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	YE	658	Cellular Telephone Voice Signal	I	-
2	0.35	BK/YE	659	Cellular Telephone Voice Low Reference	I	-
3	0.5	L-BU	2500	High Speed GMLAN Serial Data (+) (1)	II	-
4	0.5	WH	2501	High Speed GMLAN Serial Data (-) (1)	II	-
5	0.5		1792	Drain Wire	II	-
6	0.35	GY/YE	5149	Voice Recognition Audio Signal	I	-
7	0.35	WH/L-BU	5986	Serial Data Communication Enable	I	-
8	0.35		514	Drain Wire	I	-
9	0.35	L-BU	655	Cellular Telephone Microphone Signal	I	-
10	0.35	BK/BN	654	Cellular Telephone Microphone Low Reference	I	-
11	-	-	-	Not Occupied	-	-
12	0.35	BK/GY	5152	Voice Recognition Audio Low Reference	I	-

K73 Telematics Communication Interface Control Module X5 (UE1)

Connector Part Information

Harness Type: Body COAX

OEM Connector: COAX

Service Connector: Service by Cable Assembly — See Part Catalog

Description: 1-Way F Coax Type (VT)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available

K73 Telematics Communication Interface Control Module X5 (UE1)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
-	-	COAX	-	(GPS/Cell) Coaxial Antenna Cell/GPS combined Signal	I	-

K73 Telematics Communication Interface Control Module X7 (UE1)

Connector Part Information

Harness Type: Body COAX

OEM Connector: COAX

Service Connector: Service by Cable Assembly — See Part Catalog

Description: 1-Way F Coax Type (BN)

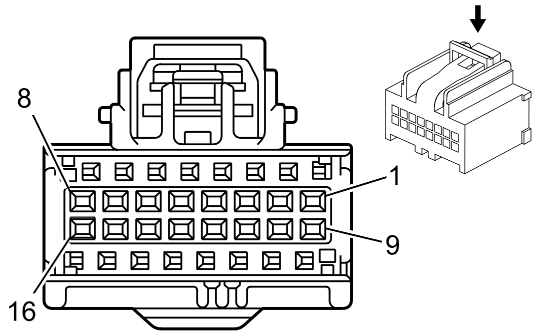
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available

K73 Telematics Communication Interface Control Module X7 (UE1)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
-	-	COAX	-	(GPS/Cell) Coaxial Antenna Cell/GPS combined Signal	I	-

K74 Human Machine Interface Control Module X1



Connector Part Information

Harness Type: Instrument Panel

OEM Connector: 7283-9076-30

Service Connector: 15136073

Description: 16-Way F Kaizen 64 Series (BK)

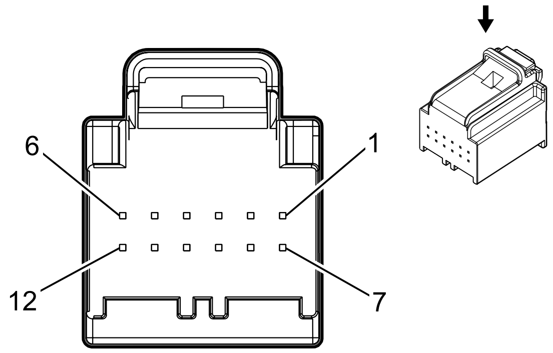
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	13575845	J-35616-64B (L-BU)	J-38125-215A	Not Available	Not Available	Not Available	Not Available
II	19303553	J-35616-64B (L-BU)	J-38125-11A	Not Available	Not Available	Not Available	Not Available

K74 Human Machine Interface Control Module X1

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	GY/YE	5149	Voice Recognition Audio Signal	I	-
2	0.35	BK/GY	5152	Voice Recognition Audio Low Reference	I	-
3-4	-	-	-	Not Occupied	-	-
5	0.35	WH/L-BU	5986	Serial Data Communication Enable	I	-
6	-	-	-	Not Occupied	-	-
7	0.75	RD/VT	340	Battery Positive Voltage	II	-
8	0.75	BK/WH	2051	Signal Ground	II	-
9	0.5	VT/YE	7527	Linear Interconnect Network Bus 5	I	-
10	-	-	-	Not Occupied	-	-
11	0.5	L-BU	2500	High Speed GMLAN Serial Data (+) (1)	I	-
12	0.5	WH	2501	High Speed GMLAN Serial Data (-) (1)	I	-
13	0.5	L-BU	2500	High Speed GMLAN Serial Data (+) (1)	I	-
14	0.5	WH	2501	High Speed GMLAN Serial Data (-) (1)	I	-
15-16	-	-	-	Not Occupied	-	-

K74 Human Machine Interface Control Module X2



Connector Part Information

Harness Type: Instrument Panel

OEM Connector: 31410-1121

Service Connector: 19151154

Description: 12-Way F 64 Series, Sealed (GY)

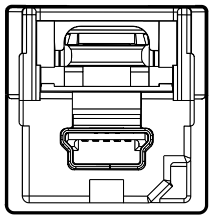
Terminal Part Information

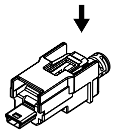
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	13575845	J-35616-64B (L-BU)	J-38125-215A	Not Available	Not Available	Not Available	Not Available

K74 Human Machine Interface Control Module X2

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	WH/VT	3999	MOST Control	I	-
2	0.5	WH/L-GN	3997	MOST Serial Data (-)	I	-
3	0.5	GY/VT	3998	MOST Serial Data (+)	I	-
4	-	-	-	Not Occupied	-	-
5	0.35	GY/YE	6972	Camera Signal #2 +	I	-
6	0.35	WH/L-BU	6973	Camera Signal #2	I	-
7	-	-	-	Not Occupied	-	-
8	0.5	GY/VT	3998	MOST Serial Data (+)	I	-
9	0.5	WH/L-GN	3997	MOST Serial Data (-)	I	-
10-12	-	-	-	Not Occupied	-	-

K74 Human Machine Interface Control Module X4





Connector Part Information

Harness Type: Instrument Panel LVDS

OEM Connector: RSD-111014-152

Service Connector: Service by Cable Assembly — See Part Catalog

Description: 5-Way M 2.0 Mini B USB Type (BK)

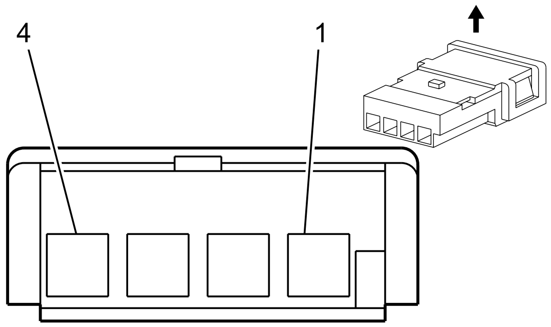
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available

K74 Human Machine Interface Control Module X4

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
-	-	LVDS	-	(Navigation) Navigation Display Signal	I	-

K77 Remote Control Door Lock Receiver



Connector Part Information

Harness Type: Headliner

OEM Connector: 968943-1

Service Connector: 13576534

Description: 4-Way F 0.64 Micro Quadlock Series (BK)

Harness Type: Headliner Extension

OEM Connector: 968943-1

Service Connector: Service by Harness - See Part Catalog

Description: 4-Way F 0.64 Micro Quadlock Series (BK)

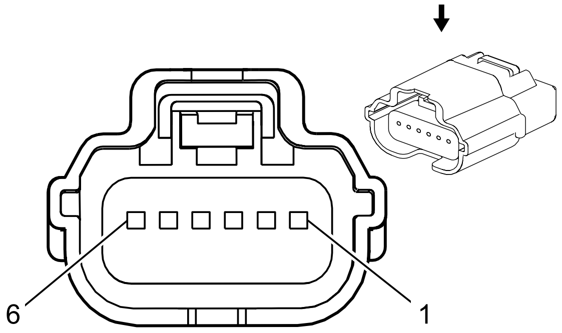
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-64B (L-BU)	Not Available	Not Available	Not Available	Not Available	Not Available

K77 Remote Control Door Lock Receiver

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	GY	3273	Remote Function Actuator Return	I	-
2	0.35	YE/L-GN	3274	Remote Function Actuator Transmit Signal	I	-
3	0.35	L-BU/WH	3275	Remote Function Actuator Receive Signal	I	-
4	0.35	GY/WH	3272	Remote Function Actuator Supply Voltage	I	-

K85 Passenger Presence Module



Connector Part Information

Harness Type: Passenger Seat Cushion

OEM Connector: 31404-6132

Service Connector: Service by Harness – See Part Catalog

Description: 6-Way F 0.64 Series, Sealed (BK)

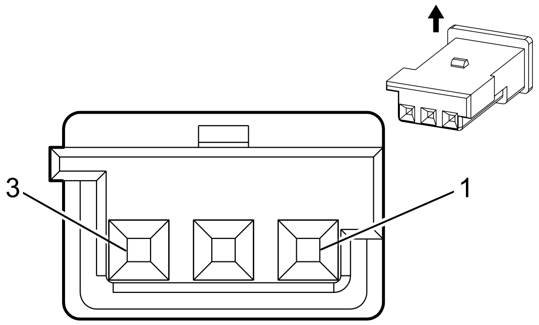
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	13575299	J-35616-64B (L-BU)	J-38125-215A	Not Available	Not Available	P	P

K85 Passenger Presence Module

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	RD/L-GN	4440	Battery Positive Voltage	I	-
2	0.35	L-GN	5060	Low Speed GMLAN Serial Data	I	-
3	-	-	-	Not Occupied	-	-
4	0.35	BK/WH	2251	Signal Ground	I	-
5	0.35	L-BU/RD	5612	Passenger Seat Belt Tension Sensor Voltage Reference	I	-
6	0.35	VT/OG	5611	Passenger Seat Belt Tension Sensor Signal	I	-

K89 Immobilizer Control Module



Connector Part Information

Harness Type: Instrument Panel

OEM Connector: 4-1718346-1

Service Connector: 13576530

Description: 3-Way F 0.64 Micro Quadlock Series (PU)

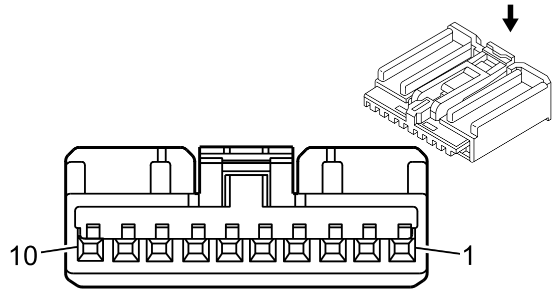
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-64B (L-BU)	Not Available	Not Available	Not Available	Not Available	Not Available

K89 Immobilizer Control Module

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	L-GN/GY	3277	Vehicle Anti-Theft System Immobilizer Return	I	-
2	0.35	L-GN/VT	7533	Linear Interconnect Network Bus 11	I	-
3	0.35	GY/BK	3276	Vehicle Anti-Theft System Immobilizer Supply Voltage	I	-

K109 Frontview Camera Module (UFL/UEU)



Connector Part Information

Harness Type: Headliner

OEM Connector: AIT2PB-10-1AK

Service Connector: 13576634

Description: 10-Way F 0.64 Kaizen Series (BK)

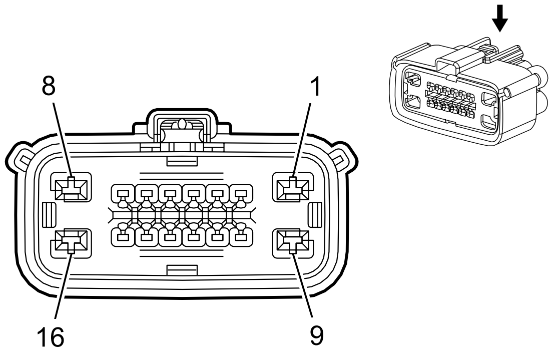
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	13575867	J-35616-64B (L-BU)	J-38125-215A	Not Available	Not Available	Not Available	Not Available
II	Not Available	J-35616-64B (L-BU)	Not Available	Not Available	Not Available	Not Available	Not Available

K109 Frontview Camera Module (UFL/UEU)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	BK	3450	Ground	I	-
2	-	-	-	Not Occupied	-	-
3	0.35	RD/L-GN	3140	Battery Positive Voltage	I	-
4	0.35	WH	3152	Lane Departure Warning Indicator Control	I	-
5-6	-	-	-	Not Occupied	-	-
7	0.5	L-GN	5060	Low Speed GMLAN Serial Data	I	-
8-9	-	-	-	Not Occupied	-	-
10	0.35	GY/WH	3153	Lane Departure Warning Disable Switch Signal	I	-

K111 Fuel Pump Driver Control Module (LCV)



Connector Part Information

Harness Type: Chassis

OEM Connector: 33476-4003

Service Connector: 13587961

Description: 16-Way F 1.5, 2.8 Series, Sealed (BK)

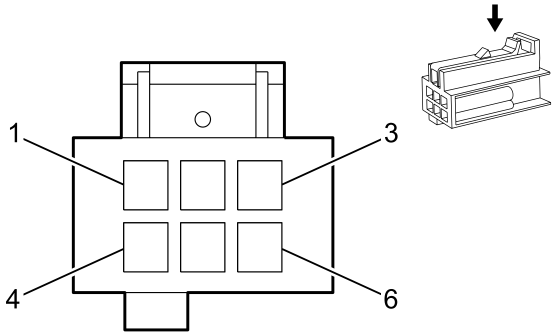
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	19329755	J-35616-64B (LT BU)	J-38125-12A	Not Available	Not Available	Not Available	Not Available
II	19300635	J-35616-2A (GY)	J-38125-217	Not Available	Not Available	Not Available	Not Available

K111 Fuel Pump Driver Control Module (LCV)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	2.5	RD/VT	1940	Battery Positive Voltage	I	LCV
2	0.5	GY	5660	Fuel Pump Controller Data Out Signal	II	LCV
3	-	-	-	Not Occupied	-	-
4	0.5	L-BU/BK	7493	High Speed GMLAN Serial Data (+)(3)	II	LCV
5	0.5	WH	7494	High Speed GMLAN Serial Data (-)(3)	II	LCV
6	0.75	VT/GY	139	Run/Crank Ignition 1 Voltage	II	LCV
7	0.5	VT/YE	5985	Accessory Wakeup Serial Data	II	LCV
8	2.5	GY	120	Fuel Pump Supply Voltage	I	LCV
9	2.5	BK	650	Ground	I	LCV
10-14	-	-	-	Not Occupied	-	-
15	0.5	BK	7444	Fuel System Control Module Shield	II	LCV
16	2.5	BK/L-GN	1580	Fuel Pump Low Reference	I	LCV

M4 Air Inlet Door Actuator



Connector Part Information

Harness Type: HVAC

OEM Connector: 965413-1

Service Connector: Service by Harness – See Part Catalog

Description: 6-Way F 0.64 Micro-Quadlock Series (BK)

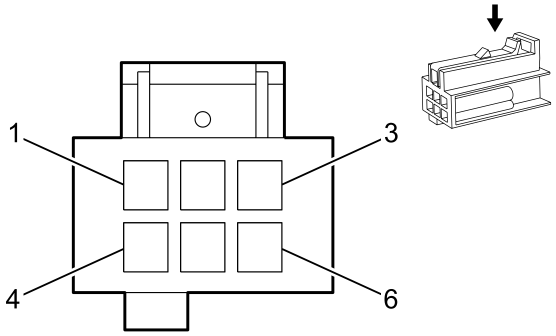
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available

M4 Air Inlet Door Actuator

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	GY	3173	Air Inlet Door Stepper Motor Control (1)	I	-
2	0.35	BK	7572	HVAC Motor Supply Voltage	I	-
3	0.35	L-BU/WH	3174	Air Inlet Door Stepper Motor Control (2)	I	-
4	0.35	BN/L-GN	3175	Air Inlet Door Stepper Motor Control (3)	I	-
5	-	-	-	Not Occupied	-	-
6	0.35	RD/L-GN	3176	Air Inlet Door Stepper Motor Control (4)	I	-

M6 Air Temperature Door Actuator



Connector Part Information

Harness Type: HVAC

OEM Connector: 965413-1

Service Connector: Service by Harness – See Part Catalog

Description: 6-Way F 0.64 Micro-Quadlock Series (BK)

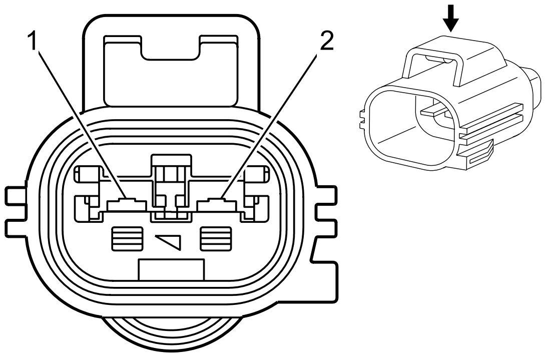
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available

M6 Air Temperature Door Actuator

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	L-GN	3169	Temp Door Stepper Motor Control (1)	I	-
2	0.35	BK	7572	HVAC Motor Supply Voltage	I	-
3	0.35	WH/PK	3170	Temp Door Stepper Motor Control (2)	I	-
4	0.35	GY/RD	3171	Temp Door Stepper Motor Control (3)	I	-
5	-	-	-	Not Occupied	-	-
6	0.35	RD/BK	3172	Temp Door Stepper Motor Control (4)	I	-

M9 Brake Booster Pump Motor (LFX)



Connector Part Information

Harness Type: Engine

OEM Connector: 10779536

Service Connector: 19115602

Description: 2-Way M 2.8 Series, Sealed (D-GY)

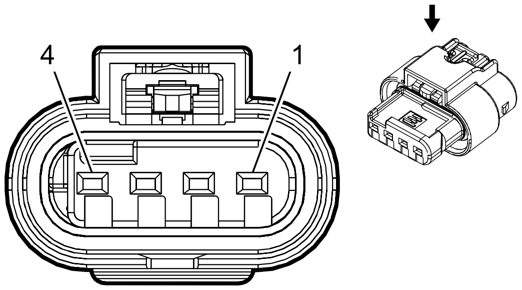
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-64B (LT BU)	Not Available	Not Available	Not Available	Not Available	Not Available

M9 Brake Booster Pump Motor (LFX)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	2.5	BN/VT	1470	Brake Booster Pump Motor Supply Voltage	I	-
2	2.5	BK	1450	Ground	I	-

M26 Front Axle Engagement Actuator (NQ6/NQ7)



Connector Part Information

Harness Type: Electric Power Steering

OEM Connector: 13576418

Service Connector: Service by Harness - See Part Catalog

Description: 4-Way F 1.2 Multiple Contact Point Series, Sealed (BK)

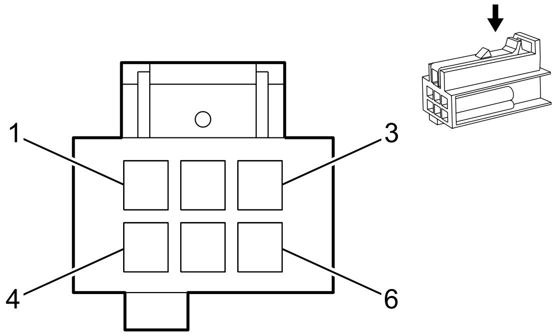
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-64B (L-BU)	Not Available	Not Available	Not Available	Not Available	Not Available

M26 Front Axle Engagement Actuator (NQ6/NQ7)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	VT/BK	2139	Run/Crank Ignition 1 Voltage	I	-
2	0.5	GY/BK	1570	Front Axle Actuator Control	I	-
3	0.5	YE/WH	1695	Four Wheel Drive Wheel Lock Indicator	I	-
4	0.75	BK	1450	Ground	I	-

M37 Mode Door Actuator



Connector Part Information

Harness Type: HVAC

OEM Connector: 965413-1

Service Connector: Service by Harness – See Part Catalog

Description: 6-Way F 0.64 Micro-Quadlock Series (BK)

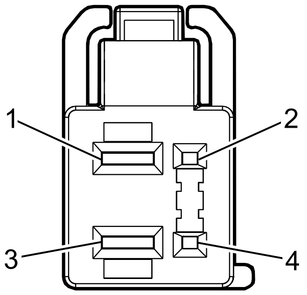
Terminal Part Information

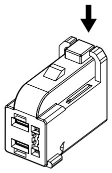
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available

M37 Mode Door Actuator

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	YE	3165	Mode Door Stepper Motor Control (1)	I	-
2	0.35	BK	7572	HVAC Motor Supply Voltage	I	-
3	0.35	WH/RD	3166	Mode Door Stepper Motor Control (2)	I	-
4	0.35	GY/BN	3167	Mode Door Stepper Motor Control (3)	I	-
5	-	-	-	Not Occupied	-	-
6	0.35	L-GN/WH	3168	Mode Door Stepper Motor Control (4)	I	-

M51D Seat Horizontal Motor – Driver (AH6)





Connector Part Information

Harness Type: Driver Seat Cushion

OEM Connector: 3-023-66-52

Service Connector: Service by Harness - See Part Catalog

Description: 4-Way F 0.64, 2.8 Series (BN)

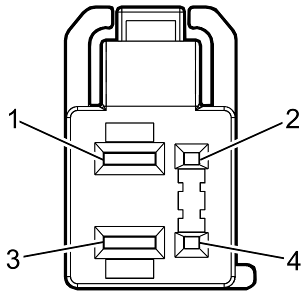
Terminal Part Information

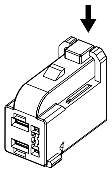
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available

M51D Seat Horizontal Motor – Driver (AH6)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	1.5	GY/L-GN	284	Driver Power Seat Horizontal Motor Rearward Control	I	-
2	-	-	-	Not Occupied	-	-
3	1.5	YE/L-BU	285	Driver Power Seat Horizontal Motor Forward Control	I	-
4	-	-	-	Not Occupied	-	-

M51P Seat Horizontal Motor - Passenger (AAQ)





Connector Part Information

Harness Type: Passenger Seat Cushion

OEM Connector: 3-023-66-52

Service Connector: Service by Harness - See Part Catalog

Description: 4-Way F 0.64, 2.8 Series (BN)

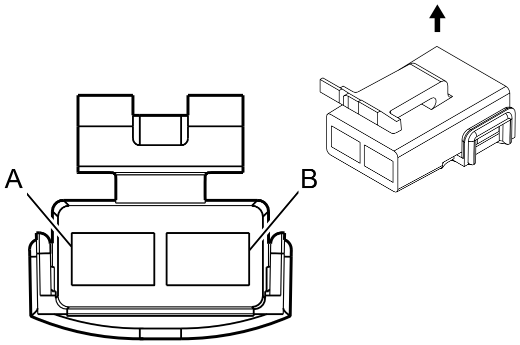
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available

M51P Seat Horizontal Motor - Passenger (AAQ)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	1.5	YE/WH	296	Passenger Power Seat Horizontal Motor Forward Control	I	-
2	-	-	-	Not Occupied	-	-
3	1.5	YE/L-BU	290	Passenger Power Seat Horizontal Motor Rearward Control	I	-
4	-	-	-	Not Occupied	-	-

M52D Seat Lumbar Support Horizontal Motor - Driver (AL9)



Connector Part Information

Harness Type: Driver Seat Back

OEM Connector: 12020556

Service Connector: 12101820

Description: 2-Way F 480 Metri-Pack Series (BK)

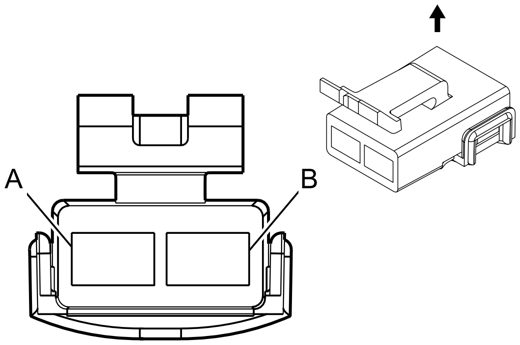
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available

M52D Seat Lumbar Support Horizontal Motor - Driver (AL9)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	1.5	VT	610	Driver Power Seat Lumbar Motor Rearward Control	I	-
B	1.5	L-BU	611	Driver Power Seat Lumbar Motor Forward Control	I	-

M52P Seat Lumbar Support Horizontal Motor - Passenger (AAQ)



Connector Part Information

Harness Type: Passenger Seat Back

OEM Connector: 12020556

Service Connector: 12101820

Description: 2-Way F 480 Metri-Pack Series (BK)

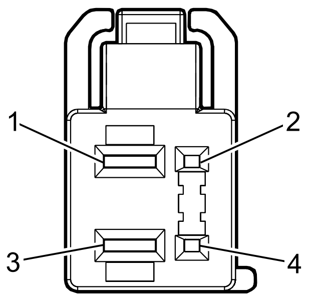
Terminal Part Information

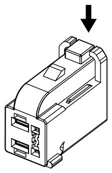
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available

M52P Seat Lumbar Support Horizontal Motor - Passenger (AAQ)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	1.5	VT	210	Passenger Power Seat Lumbar Motor Rearward Control	I	-
B	1.5	L-BU	211	Passenger Power Seat Lumbar Motor Forward Control	I	-

M55D Seat Rear Vertical Motor - Driver (AH6)





Connector Part Information

Harness Type: Driver Seat Cushion

OEM Connector: 3-023-66-52

Service Connector: Service by Harness - See Part Catalog

Description: 4-Way F 0.64, 2.8 Series (BN)

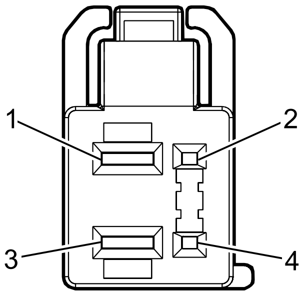
Terminal Part Information

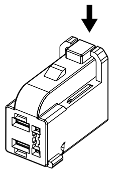
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available

M55D Seat Rear Vertical Motor - Driver (AH6)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	1.5	GY/L-BU	283	Driver Power Seat Rear Vertical Motor Down Control	I	-
2	-	-	-	Not Occupied	-	-
3	1.5	YE	282	Driver Power Seat Rear Vertical Motor Up Control	I	-
4	-	-	-	Not Occupied	-	-

M55P Seat Rear Vertical Motor - Passenger (AAQ)





Connector Part Information

Harness Type: Passenger Seat Cushion

OEM Connector: 3-023-66-52

Service Connector: Service by Harness - See Part Catalog

Description: 4-Way F 0.64, 2.8 Series (BN)

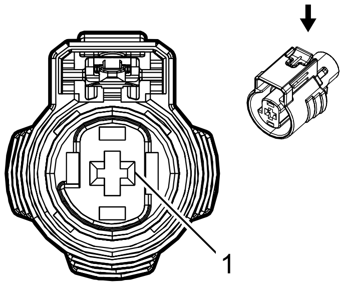
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available

M55P Seat Rear Vertical Motor - Passenger (AAQ)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	1.5	L-GN/WH	288	Passenger Power Seat Rear Vertical Motor Up Control	I	-
2	-	-	-	Not Occupied	-	-
3	1.5	L-BU/WH	289	Passenger Power Seat Rear Vertical Motor Down Control	I	-
4	-	-	-	Not Occupied	-	-

M64 Starter Motor X1 (LCV)



Connector Part Information

Harness Type: Engine

OEM Connector: 2098198-9

Service Connector: 19300471

Description: 1-Way F 2.8 MCP Series, Sealed (BK)

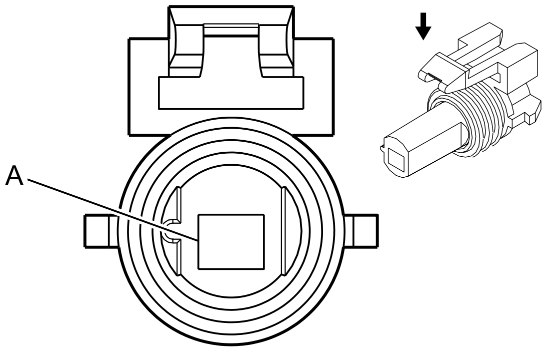
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-35 (VT)	Not Available	Not Available	Not Available	Not Available	Not Available

M64 Starter Motor X1 (LCV)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	2.5	YE	6	Starter Solenoid Crank Voltage	I	-

M64 Starter Motor X1 (LFX)



Connector Part Information

Harness Type: Engine

OEM Connector: 12089916

Service Connector: 12101763

Description: 1-Way F 280 Metri Pack Series, Sealed (GY)

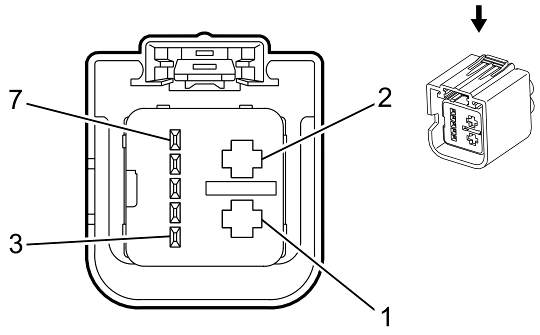
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-64B (LT BU)	Not Available	Not Available	Not Available	Not Available	Not Available

M64 Starter Motor X1 (LFX)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	2.5	YE	6	Starter Solenoid Crank Voltage	I	-

M74D Window Motor - Driver



Connector Part Information

Harness Type: Driver Door

OEM Connector: 1732115-1

Service Connector: Service by Harness - See Part Catalog

Description: 7-Way F 0.64, 2.8 Kaizen Timer Series, Sealed (BK)

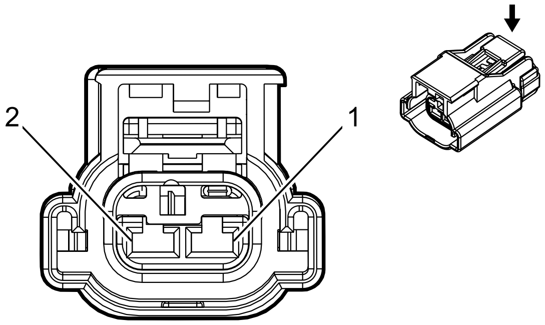
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-35 (VT)	Not Available	Not Available	Not Available	Not Available	Not Available
II	Not Available	J-35616-64B (L-BU)	Not Available	Not Available	Not Available	Not Available	Not Available

M74D Window Motor - Driver

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	2.5	BK	3550	Ground	I	-
2	2.5	RD/L-BU	1240	Battery Positive Voltage	I	-
3	0.35	L-GN/WH	1300	Power Window Master Switch Left Front Up Signal	II	-
4	0.5	L-GN/YE	6134	Linear Interconnect Network Bus 3	II	-
5	0.35	L-GN/VT	7628	Power Window Motor Left Front Express Control	II	-
6	0.35	GY	745	Left Front Door Ajar Switch Signal	II	-
7	0.35	GY	1136	Power Window Master Switch Left Front Down Signal	II	-

M74LR Window Motor - Left Rear (Crew Cab)



Connector Part Information

Harness Type: Left Rear Door

OEM Connector: 54200220N

Service Connector: Service by Harness - See Part Catalog

Description: 2-Way F 2.8 Series, Sealed (BK)

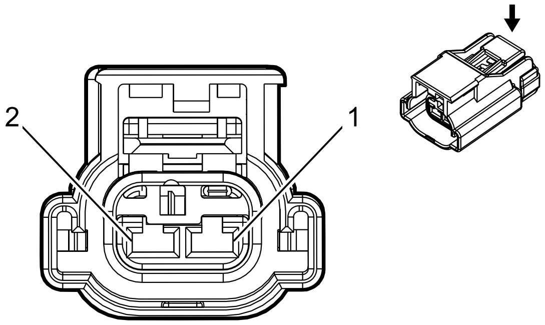
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-64B (L-BU)	Not Available	Not Available	Not Available	Not Available	Not Available

M74LR Window Motor - Left Rear (Crew Cab)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	2.5	L-BU/VT	668	Power Window Motor Left Rear Up Control	I	-
2	2.5	YE/L-BU	669	Power Window Motor Left Rear Down Control	I	-

M74P Window Motor - Passenger



Connector Part Information

Harness Type: Passenger Door

OEM Connector: 54200220N

Service Connector: Service by Harness - See Part Catalog

Description: 2-Way F 2.8 Series, Sealed (BK)

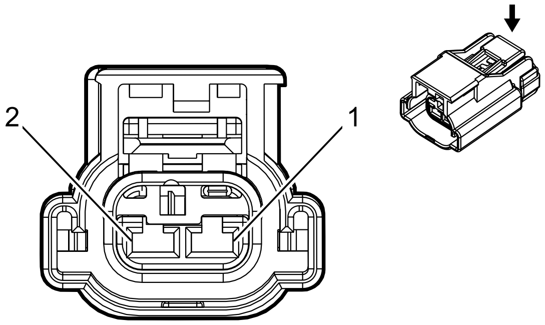
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-64B (L-BU)	Not Available	Not Available	Not Available	Not Available	Not Available

M74P Window Motor - Passenger

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	2.5	YE/L-BU	3388	Power Window Motor Co-Driver Down Control	I	-
2	2.5	L-GN/GY	3387	Power Window Motor Co-Driver Up Control	I	-

M74RR Window Motor - Right Rear (Crew Cab)



Connector Part Information

Harness Type: Right Rear Door

OEM Connector: 54200220N

Service Connector: 19301518

Description: 2-Way F 2.8 Series, Sealed (BK)

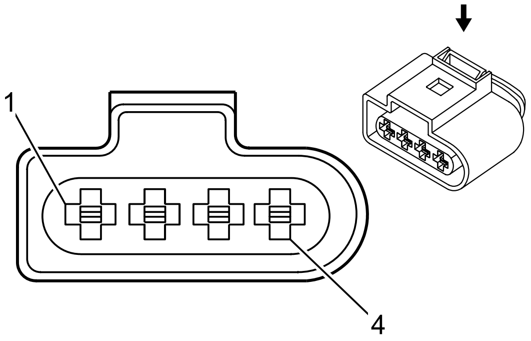
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available

M74RR Window Motor - Right Rear (Crew Cab)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	2.5	L-BU/GY	670	Power Window Motor Right Rear Up Control	I	-
2	2.5	L-GN/BK	671	Power Window Motor Right Rear Down Control	I	-

M75 Windshield Wiper Motor



Connector Part Information

Harness Type: Body

OEM Connector: 42122100

Service Connector: 13578531

Description: 4-Way F 2. 8 Junior Power Timer Series, Sealed (BK)

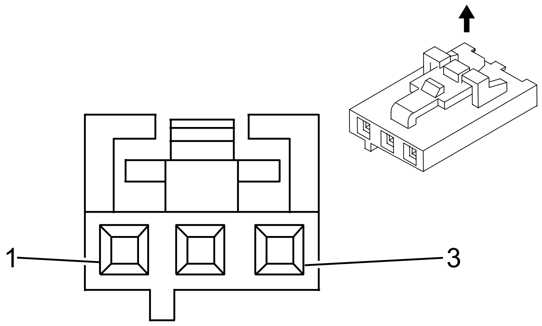
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-4A (PU)	Not Available	Not Available	Not Available	Not Available	Not Available

M75 Windshield Wiper Motor

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BN/L-GN	196	Windshield Wiper Motor Park Switch Signal	I	-
2	1.5	YE/BN	95	Windshield Wiper Motor Low Speed Control	I	-
3	1.5	BK	3150	Ground	I	-
4	1.5	WH	92	Windshield Wiper Motor High Speed Control	I	-

M77D Outside Rearview Mirror Motor - Driver (DL6/DL9)



Connector Part Information

Harness Type: Outside Rearview Mirror - Driver

OEM Connector: 50-57-9403

Service Connector: 21019417

Description: 3-Way F 0.64 SL Series (BK)

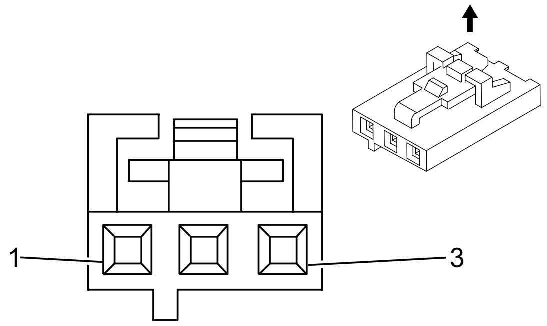
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available

M77D Outside Rearview Mirror Motor - Driver (DL6/DL9)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.32	GN/WH	3389	Driver Mirror Motor Right (+) Left (-) Control	I	-
2	0.32	WH	3391	Driver Mirror Motor Common Control	I	-
3	0.32	D-BU/WH	3390	Driver Mirror Motor Up (+) Down (-) Control	I	-

M77P Outside Rearview Mirror Motor - Passenger (DL6/DL9)



Connector Part Information

Harness Type: Outside Rearview Mirror - Passenger

OEM Connector: 50-57-9403

Service Connector: 21019417

Description: 3-Way F 0.64 SL Series (BK)

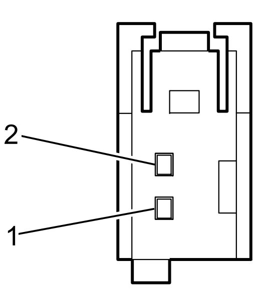
Terminal Part Information

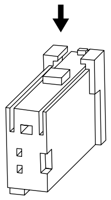
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available

M77P Outside Rearview Mirror Motor - Passenger (DL6/DL9)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.32	GN/WH	3397	Co-Driver Mirror Motor Up (+) Down (-) Control	I	-
2	0.32	WH	3398	Co-Driver Mirror Motor Common Control	I	-
3	0.32	D-BU/WH	3396	Co-Driver Mirror Motor Right (+) Left (-) Control	I	-

M93 Key Capture Solenoid Actuator (MYB)





Connector Part Information

Harness Type: Instrument Panel

OEM Connector: AIT2PB-02A-1AK

Service Connector: 13314093

Description: 2-Way F 0.64 Series (BK)

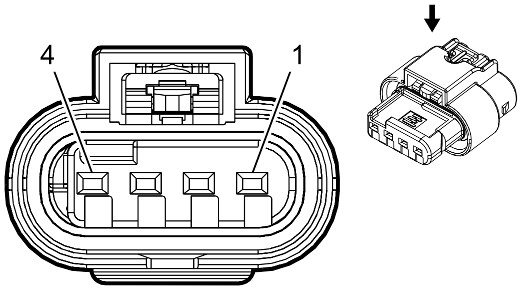
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-64B (L-BU)	Not Available	Not Available	Not Available	Not Available	Not Available

M93 Key Capture Solenoid Actuator (MYB)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	VT/YE	143	Accessory Voltage	I	-
2	0.35	BK	2050	Ground	I	-

M96 Active Grille Air Shutter Actuator (LCV)



Connector Part Information

Harness Type: Jumper Harness

OEM Connector: 13576420

Service Connector: Service by Harness - See Part Catalog

Description: 4-Way F 1.2 MCP Series, Sealed (BK)

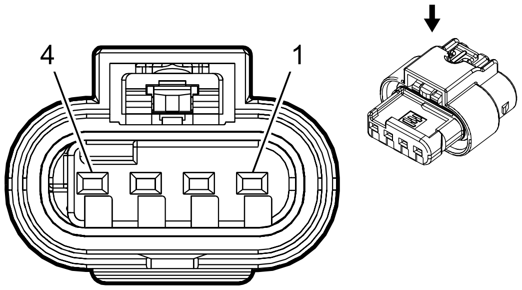
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-35 (VT)	Not Available	Not Available	Not Available	Not Available	Not Available

M96 Active Grille Air Shutter Actuator (LCV)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	WH/VT	4333	Aero Shutter Actuator Supply Voltage	I	-
2	0.5	GY	3890	Aero Shutter Control	I	-
3	-	-	-	Not Occupied	-	-
4	0.5	BK	1250	Ground	I	-

M96 Active Grille Air Shutter Actuator (LFX)



Connector Part Information

Harness Type: Jumper Harness

OEM Connector: 13576420

Service Connector: Service by Harness - See Part Catalog

Description: 4-Way F 1.2 MCP Series, Sealed (BK)

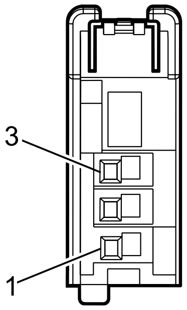
Terminal Part Information

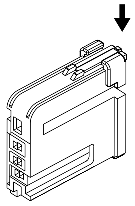
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-35 (VT)	Not Available	Not Available	Not Available	Not Available	Not Available

M96 Active Grille Air Shutter Actuator (LFX)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BN	3891	Aero Shutter Control	I	-
2	0.5	BK	1250	Ground	I	-
3	0.5	WH/VT	4333	Aero Shutter Actuator Supply Voltage	I	-
4	-	-	-	Not Occupied	-	-

P2 Transmission Shift Lever Position Indicator (MYB)





Connector Part Information

Harness Type: Console

OEM Connector: AIT2PB-03B-1AK

Service Connector: Service by Harness - See Part Catalog

Description: 3-Way F 0.64 Series (BK)

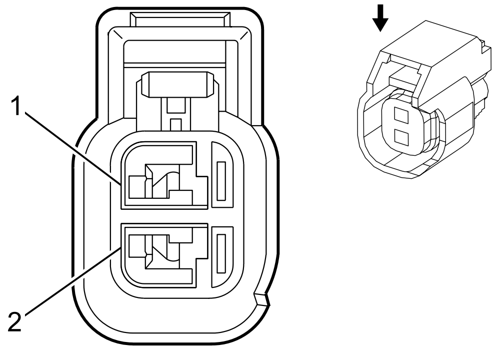
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-64B (L-BU)	Not Available	Not Available	Not Available	Not Available	Not Available

P2 Transmission Shift Lever Position Indicator (MYB)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	VT	801	Retained Accessory Power Fuse Supply Voltage	I	-
2	0.5	L-GN/L-BU	6133	Linear Interconnect Network Bus 2	I	-
3	0.35	BK	2050	Ground	I	-

P13 Horn Assembly



Connector Part Information

Harness Type: Forward Lamp

OEM Connector: 88988857

Service Connector: 13585854

Description: 2-Way F 150 GT Series, Sealed (BK)

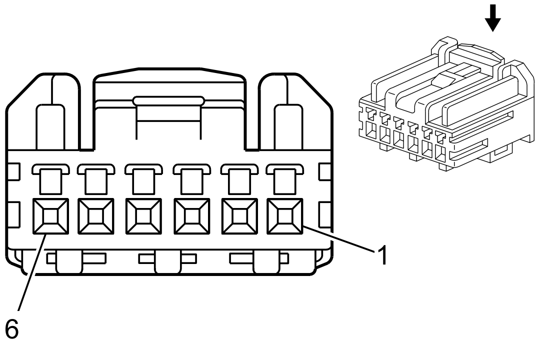
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-2A (GY)	Not Available	Not Available	Not Available	Not Available	Not Available

P13 Horn Assembly

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	1	BK	1150	Ground	I	-
2	0.75	BN/GY	29	Horn Control	I	-

P14 Passenger Air Bag Disabled Indicator



Connector Part Information

Harness Type: Headliner

OEM Connector: HCMPB-C06-S

Service Connector: 19153174

Description: 6-Way F 0.64 HCM Series (NA)

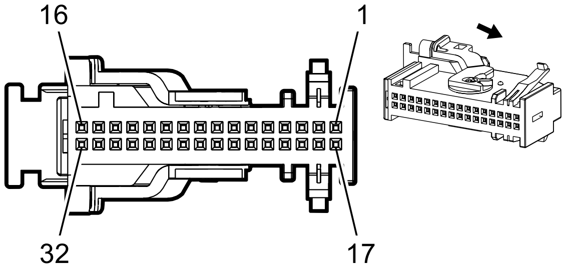
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-64B (LT BU)	Not Available	Not Available	Not Available	Not Available	Not Available
II	Not Available	J-35616-64B (L-BU)	Not Available	Not Available	Not Available	Not Available	Not Available

P14 Passenger Air Bag Disabled Indicator

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	L-BU	2307	Passenger Air Bag On Indicator Control	I	-
2	0.5	BK	3150	Ground	I	-
3	0.35	L-GN	2308	Passenger Air Bag Off Indicator Control	I	-
4	0.35	VT/WH	1139	Run/Crank Ignition 1 Voltage	I	-
5	0.35	VT/WH	5234	Passenger Seat Belt Indicator	I	-
6	-	-	-	Not Occupied	-	-

P16 Instrument Cluster



Connector Part Information

Harness Type: Instrument Panel

OEM Connector: 968265-1

Service Connector: 88988405

Description: 32-Way F 0.64 Micro Quadlok Series (BK)

Terminal Part Information

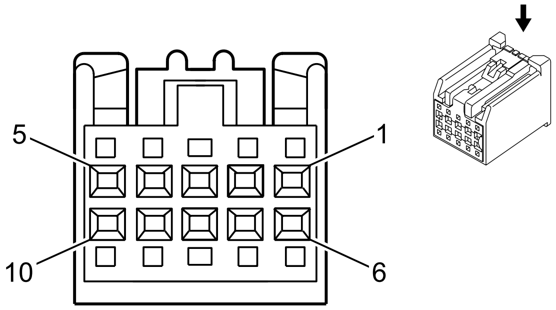
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	13575585	J-35616-64B (L-BU)	J-38125-12A	Not Available	Not Available	Not Available	Not Available
II	13575587	J-35616-64B (L-BU)	J-38125-12A	Not Available	Not Available	Not Available	Not Available

P16 Instrument Cluster

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	WH/L-GN	3997	MOST Serial Data (-)	II	-
2	0.5	GY/VT	3998	MOST Serial Data (+)	II	-
3	0.5	L-GN	5060	Low Speed GMLAN Serial Data	II	-
4	-	-	-	Not Occupied	-	-
5	0.35	WH/VT	3999	MOST Control	I	-
6	-	-	-	Not Occupied	-	-
7	0.5	RD/GY	2840	Battery Positive Voltage	II	-
8	0.5	VT/BK	1639	Run/Crank Ignition 1 Voltage	II	-
9	0.35	GY/L-BU	893	Driver Information Center Select Menu Switch Signal	I	-
10-11	-	-	-	Not Occupied	-	-
12	0.35	GY/YE	3885	Forward Collision Alert LED Control	I	-
13	0.35	BK/BN	897	Driver Information Center Switch Low Reference	I	-
14	0.35	L-GN/WH	1358	Driver Information Center Switch Signal	I	-
15	-	-	-	Not Occupied	-	-

16	0.35	BN/WH	419	Check Engine Indicator Control	I	-
17	0.5	GY/VT	3998	MOST Serial Data (+)	II	-
18	0.5	WH/L-GN	3997	MOST Serial Data (-)	II	-
19	0.5	BK/WH	2151	Signal Ground	II	-
20	0.5	L-GN/BK	3894	Linear Interconnect Network Bus 12	II	-
21-29	-	-	-	Not Occupied	-	-
30	0.35	WH/L-GN	3535	Reflected LED Display Dimming Control	I	-
31-32	-	-	-	Not Occupied	-	-

P17 Info Display Module X1



Connector Part Information

Harness Type: Instrument Panel

OEM Connector: AIT2PB-10P-2AK

Service Connector: 13577390

Description: 10-Way F 0.64 Kaizen Series (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	13575867	J-35616-64B (L-BU)	J-38125-215A	Not Available	Not Available	Not Available	Not Available

P17 Info Display Module X1

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	RD/GY	2840	Battery Positive Voltage	I	-
2	-	-	-	Not Occupied	-	-
3	0.5	L-GN	5060	Low Speed GMLAN Serial Data	I	-
4	-	-	-	Not Occupied	-	-
5	0.5	L-GN/L-BU	7532	Linear Interconnect Network Bus 10	I	-
6-7	-	-	-	Not Occupied	-	-
8	0.5	VT/YE	7527	Linear Interconnect Network Bus 5	I	-
9	-	-	-	Not Occupied	-	-
10	0.35	BK/WH	2051	Signal Ground	I	-

P17 Info Display Module X3

Connector Part Information

Harness Type: Instrument Panel LVDS

OEM Connector: 13576692

Service Connector: Service by Harness - See Part Catalog

Description: 5-Way M 2.0 Mini B USB Type (GY)

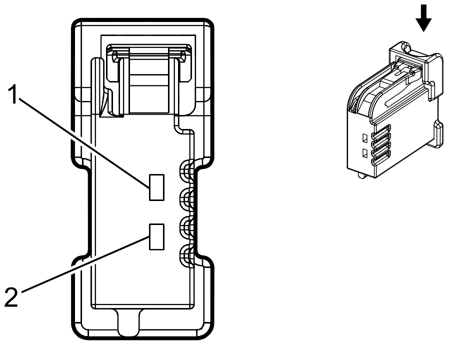
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available

P17 Info Display Module X3

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
-	-	LVDS	-	(Navigation) Navigation Display Signal	I	-

P19B Speaker - Center Instrument Panel (UQA)



Connector Part Information

Harness Type: Instrument Panel

OEM Connector: 6098-5527

Service Connector: 13314097

Description: 2-Way F 1.5 Series (GY)

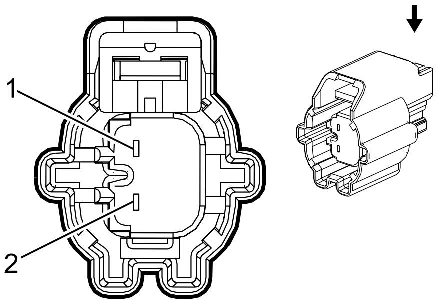
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-64B (LT BU)	Not Available	Not Available	Not Available	Not Available	Not Available

P19B Speaker - Center Instrument Panel (UQA)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	L-BU/YE	1960	Front Center Speaker (-)	I	-
2	0.75	YE/WH	1860	Front Center Speaker (+)	I	-

P19AG Speaker - Left Front Door



Connector Part Information

Harness Type: Driver Door

OEM Connector: R63461-005

Service Connector: Service by Harness - See Part Catalog

Description: 2-Way F 150 GT Series (BK)

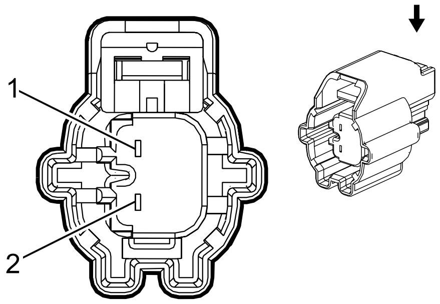
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-2A (GY)	Not Available	Not Available	Not Available	Not Available	Not Available

P19AG Speaker - Left Front Door

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	1	BN/L-BU	118	Left Front Speaker Signal (-) (1)	I	-
2	1	L-BU	201	Left Front Speaker (+) (1)	I	-

P19AH Speaker - Right Front Door



Connector Part Information

Harness Type: Passenger Door

OEM Connector: R63461-005

Service Connector: Service by Harness - See Part Catalog

Description: 2-Way F 150 GT Series (BK)

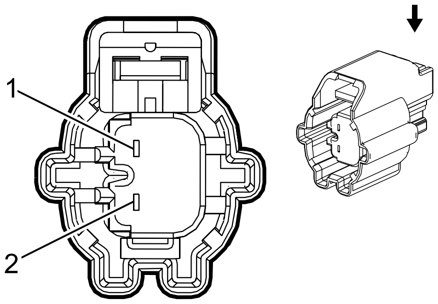
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-2A (GY)	Not Available	Not Available	Not Available	Not Available	Not Available

P19AH Speaker - Right Front Door

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	1	YE/BK	117	Right Front Speaker Signal (-) (1)	I	-
2	1	YE	200	Right Front Speaker (+) (1)	I	-

P19AL Speaker - Left Rear Door



Connector Part Information

Harness Type: Left Rear Door

OEM Connector: R63461-005

Service Connector: Service by Harness - See Part Catalog

Description: 2-Way F 150 GT Series (BK)

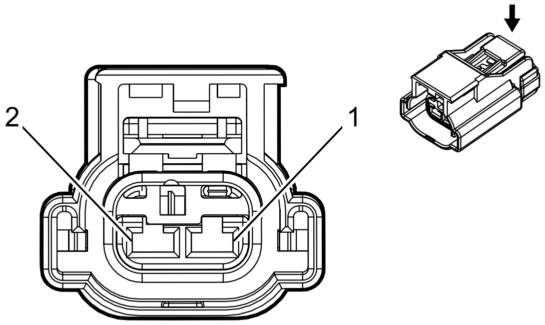
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-2A (GY)	Not Available	Not Available	Not Available	Not Available	Not Available

P19AL Speaker - Left Rear Door

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	1	L-GN/BK	116	Left Rear Speaker Signal (-)	I	-
2	1	L-GN	199	Left Rear Speaker (+)	I	-

P19AM Speaker - Right Rear Door (LWB)



Connector Part Information

Harness Type: Right Rear Door

OEM Connector: 54200220N

Service Connector: Service by Harness - See Part Catalog

Description: 2-Way F 2.8 Series, Sealed (BK)

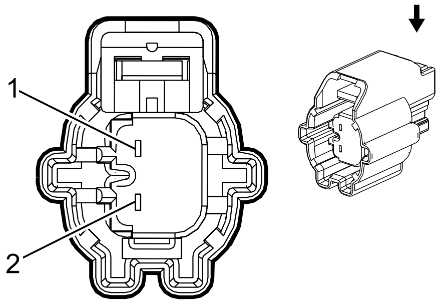
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-2A (GY)	Not Available	Not Available	Not Available	Not Available	Not Available

P19AM Speaker - Right Rear Door (LWB)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	1	L-BU/BK	115	Right Rear Speaker Signal (-)	I	-
2	1	WH	46	Right Rear Speaker (+)	I	-

P19AM Speaker - Right Rear Door (SWB)



Connector Part Information

Harness Type: Right Rear Door

OEM Connector: R63461-005

Service Connector: Service by Harness - See Part Catalog

Description: 2-Way F 150 GT Series (BK)

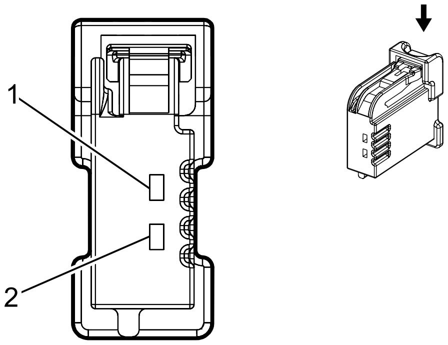
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-2A (GY)	Not Available	Not Available	Not Available	Not Available	Not Available

P19AM Speaker - Right Rear Door (SWB)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	1	L-BU/BK	115	Right Rear Speaker Signal (-)	I	-
2	1	WH	46	Right Rear Speaker (+)	I	-

P19H Speaker - Left Front Tweeter (UQA)



Connector Part Information

Harness Type: Instrument Panel

OEM Connector: 6098-5527

Service Connector: 13314097

Description: 2-Way F 1.5 Series (GY)

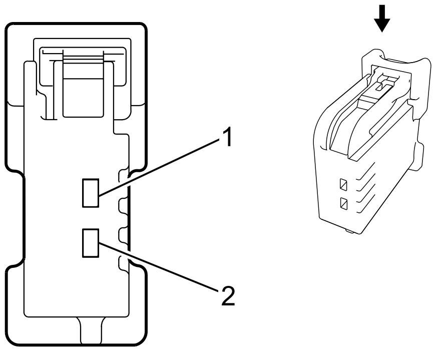
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-64B (LT BU)	Not Available	Not Available	Not Available	Not Available	Not Available

P19H Speaker - Left Front Tweeter (UQA)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	BN/L-BU	118	Left Front Speaker Signal (-) (1)	I	-
2	0.75	L-BU	201	Left Front Speaker (+) (1)	I	-

P19H Speaker - Left Front Tweeter (UQ3)



Connector Part Information

Harness Type: Instrument Panel

OEM Connector: 6098-5510

Service Connector: 13584097

Description: 2-Way F 0.64, 1.5 Series (BK)

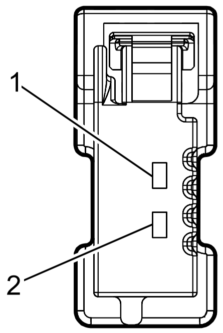
Terminal Part Information

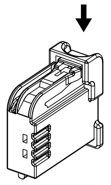
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-64B (LT BU)	Not Available	Not Available	Not Available	Not Available	Not Available

P19H Speaker - Left Front Tweeter (UQ3)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	BN/L-BU	118	Left Front Speaker Signal (-) (1)	I	-
2	0.75	L-BU	201	Left Front Speaker (+) (1)	I	-

P19V Speaker - Right Front Tweeter (UQA)





Connector Part Information

Harness Type: Instrument Panel

OEM Connector: 6098-5527

Service Connector: 13314097

Description: 2-Way F 1.5 Series (GY)

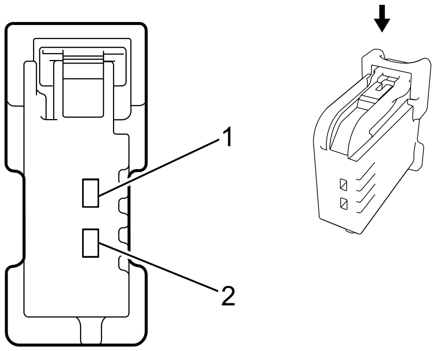
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-64B (LT BU)	Not Available	Not Available	Not Available	Not Available	Not Available

P19V Speaker - Right Front Tweeter (UQA)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	YE/BK	117	Right Front Speaker Signal (-) (1)	I	-
2	0.75	YE	200	Right Front Speaker (+) (1)	I	-

P19V Speaker - Right Front Tweeter (UQ3)



Connector Part Information

Harness Type: Instrument Panel

OEM Connector: 6098-5510

Service Connector: 13584097

Description: 2-Way F 0.64, 1.5 Series (BK)

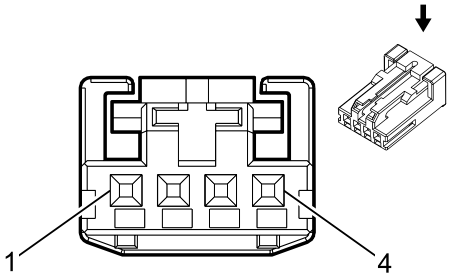
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-64B (LT BU)	Not Available	Not Available	Not Available	Not Available	Not Available

P19V Speaker - Right Front Tweeter (UQ3)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	YE/BK	117	Right Front Speaker Signal (-) (1)	I	-
2	0.75	YE	200	Right Front Speaker (+) (1)	I	-

P43 Collision Alert Indicators (UEU)



Connector Part Information

Harness Type: Instrument Panel

OEM Connector: 936119-1

Service Connector: 13587297

Description: 4-Way F 0.64 Micro Quadlock Series (BK)

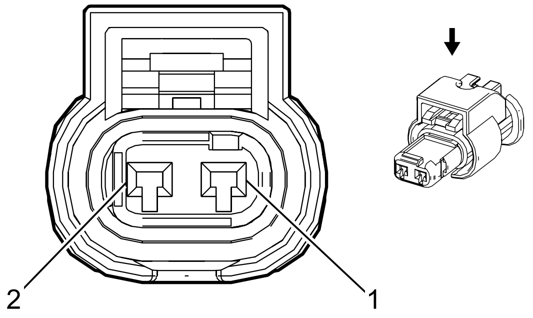
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-64B (L-BU)	Not Available	Not Available	Not Available	Not Available	Not Available

P43 Collision Alert Indicators (UEU)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	VT/BK	1639	Run/Crank Ignition 1 Voltage	I	-
2	0.35	GY/YE	3885	Forward Collision Alert LED Control	I	-
3	0.35	WH/L-GN	3535	Reflected LED Display Dimming Control	I	-
4	0.35	BK/WH	2151	Signal Ground	I	-

Q2 A/C Compressor Clutch



Connector Part Information

Harness Type: Engine (LFX)

OEM Connector: 1-1823608-5

Service Connector: 19301645

Description: 2-Way F 1.2 Multiple Contact Point Series, Sealed (BK with BK Inner Connector)

Harness Type: Engine (LCV)

OEM Connector: 1-1823608-1

Service Connector: 13577519

Description: 2-Way F 1.2 Multiple Contact Point Series, Sealed (BK with BK Inner Connector)

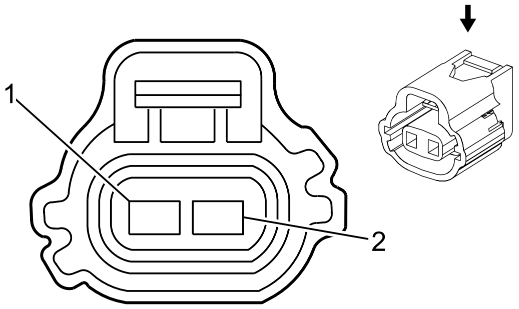
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-16 (LT GN)	Not Available	Not Available	Not Available	Not Available	Not Available
II	Not Available	J-35616-64B (LT BU)	Not Available	Not Available	Not Available	Not Available	Not Available

Q2 A/C Compressor Clutch

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	BK	1450	Ground	I	-
2	0.75	BN/L-GN	59	A/C Compressor Clutch Supply Voltage	I	-

Q6A Camshaft Position Actuator Solenoid Valve - Bank 1 Exhaust (LFX)



Connector Part Information

Harness Type: Engine

OEM Connector: 15411401

Service Connector: 89047244

Description: 2-Way F 090 Series, Sealed (BK)

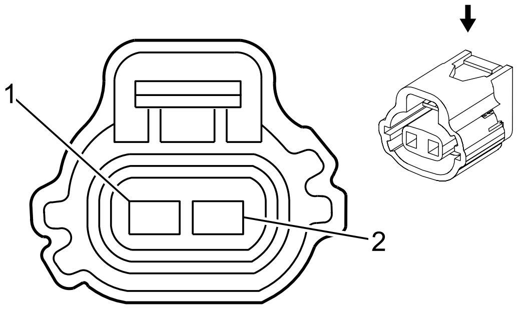
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-64B (LT BU)	Not Available	Not Available	Not Available	Not Available	Not Available

Q6A Camshaft Position Actuator Solenoid Valve - Bank 1 Exhaust (LFX)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	GY/L-BU	5282	Camshaft Phaser Exhaust Solenoid (1)	I	-
2	0.5	BK/VT	6754	Cam Phaser X Return Low Reference	I	-

Q6B Camshaft Position Actuator Solenoid Valve - Bank 1 Intake (LFX)



Connector Part Information

Harness Type: Engine

OEM Connector: 15411401

Service Connector: 89047244

Description: 2-Way F 090 Series, Sealed (BK)

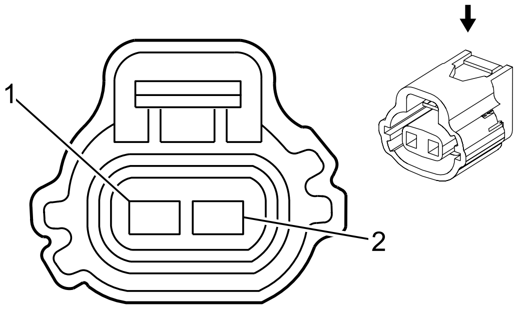
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-64B (LT BU)	Not Available	Not Available	Not Available	Not Available	Not Available

Q6B Camshaft Position Actuator Solenoid Valve - Bank 1 Intake (LFX)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	VT/BN	5284	Camshaft Phaser Intake Solenoid (1)	I	-
2	0.5	BK/BN	6753	Cam Phaser W Return Low Reference	I	-

Q6C Camshaft Position Actuator Solenoid Valve - Bank 2 Exhaust (LFX)



Connector Part Information

Harness Type: Engine

OEM Connector: 15411401

Service Connector: 89047244

Description: 2-Way F 090 Series, Sealed (BK)

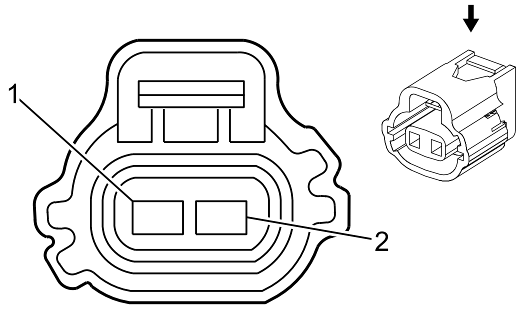
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-64B (LT BU)	Not Available	Not Available	Not Available	Not Available	Not Available

Q6C Camshaft Position Actuator Solenoid Valve - Bank 2 Exhaust (LFX)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	L-GN/BN	5283	Camshaft Phaser Exhaust Solenoid (2)	I	-
2	0.5	BK/GY	6756	Cam Phaser Z Return Low Reference	I	-

Q6D Camshaft Position Actuator Solenoid Valve - Bank 2 Intake (LFX)



Connector Part Information

Harness Type: Engine

OEM Connector: 15411401

Service Connector: 89047244

Description: 2-Way F 090 Series, Sealed (BK)

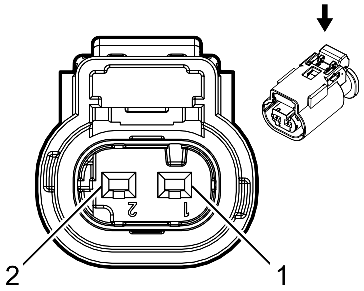
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-64B (LT BU)	Not Available	Not Available	Not Available	Not Available	Not Available

Q6D Camshaft Position Actuator Solenoid Valve - Bank 2 Intake (LFX)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	L-GN	5272	Camshaft Phaser Intake Solenoid (2)	I	-
2	0.5	BK/L-BU	6755	Cam Phaser Y Return Low Reference	I	-

Q6E Camshaft Position Actuator Solenoid Valve - Exhaust (LCV)



Connector Part Information

Harness Type: Engine

OEM Connector: 10010337

Service Connector: 19299707

Description: 2-Way F 1.2 MLK Series, Sealed (BK)

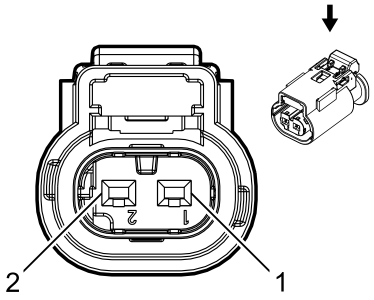
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-16 (LT GN)	Not Available	Not Available	Not Available	Not Available	Not Available

Q6E Camshaft Position Actuator Solenoid Valve - Exhaust (LCV)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	GY/L-BU	5282	Camshaft Phaser Exhaust Solenoid (1)	I	-
2	0.5	BK/VT	6754	Cam Phaser X Return Low Reference	I	-

Q6F Camshaft Position Actuator Solenoid Valve - Intake (LCV)



Connector Part Information

Harness Type: Engine

OEM Connector: 10010338

Service Connector: 13587325

Description: 2-Way F 1.2 MLK Series, Sealed (L-GY)

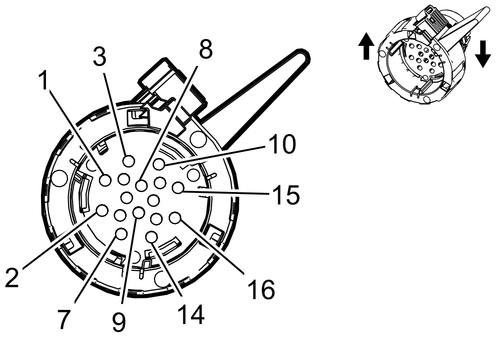
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-16 (LT GN)	Not Available	Not Available	Not Available	Not Available	Not Available

Q6F Camshaft Position Actuator Solenoid Valve - Intake (LCV)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	VT/BN	5284	Camshaft Phaser Intake Solenoid (1)	I	-
2	0.5	BK/BN	6753	Cam Phaser W Return Low Reference	I	-

Q8 Control Solenoid Valve Assembly X1 (MYB)



Connector Part Information

Harness Type: Engine

OEM Connector: 13582817

Service Connector: 19303772

Description: 16-Way F 1.5 Series, Sealed (BK)

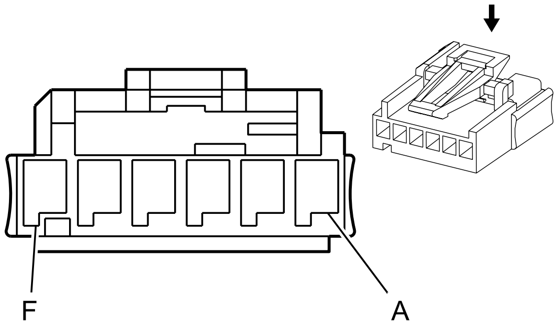
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available

Q8 Control Solenoid Valve Assembly X1 (MYB)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1-2	-	-	-	Not Occupied	-	-
3	0.5	WH/GY	1786	Transmission Park/Neutral Signal (1)	I	-
4	0.75	RD/L-GN	1840	Battery Positive Voltage	I	-
5	0.75	BK/WH	1451	Signal Ground	I	-
6-8	-	-	-	Not Occupied	-	-
9	0.5	VT/YE	5985	Accessory Wakeup Serial Data	I	-
10	0.5	L-BU	2500	High Speed GMLAN Serial Data (+) (1)	I	-
11	0.5	WH	2501	High Speed GMLAN Serial Data (-) (1)	I	-
12	0.5	VT/BK	2139	Run/Crank Ignition 1 Voltage	I	-
13	0.5	WH	2501	High Speed GMLAN Serial Data (-) (1)	I	-
14	0.5	L-BU	2500	High Speed GMLAN Serial Data (+) (1)	I	-
15-16	-	-	-	Not Occupied	-	-

Q8 Control Solenoid Valve Assembly X2 (MYB)



Connector Part Information

Harness Type: Transmission

OEM Connector: 15336500

Service Connector: 89046635

Description: 6-Way F Metri Pack 150.2 Series (GN)

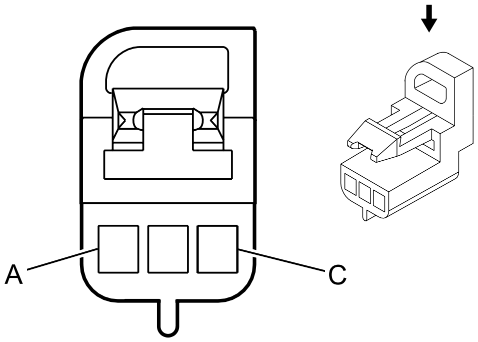
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Service by Harness – See Part Catalog	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available

Q8 Control Solenoid Valve Assembly X2 (MYB)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	0.35	GY	—	Ground	I	-
B	0.35	BK	—	Transmission Range Switch Signal P	I	-
C	0.35	YE	—	Transmission Range Switch Signal C	I	-
D	0.35	RD	—	Transmission Range Switch Signal B	I	-
E	0.35	GN	—	Transmission Range Switch Signal A	I	-
F	0.35	WH	—	Park/Neutral Switch Signal	I	-

Q8 Control Solenoid Valve Assembly X3 (MYB)



Connector Part Information

Harness Type: Transmission

OEM Connector: 13539487

Service Connector: Service by Harness – See Part Catalog

Description: 3-Way F Metri Pack 150 Series (BK)

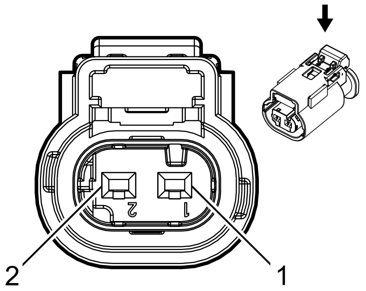
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Service by Harness – See Part Catalog	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available

Q8 Control Solenoid Valve Assembly X3 (MYB)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	0.35	GN	—	Input Speed Sensor (ISS) Signal	I	-
B	0.35	RD	—	ISS/OSS Supply Voltage	I	-
C	0.35	BK	—	Output Speed Sensor (OSS) Signal	I	-

Q12 Evaporative Emission Purge Solenoid Valve (LCV)



Connector Part Information

Harness Type: Engine

OEM Connector: 10010337

Service Connector: 19299707

Description: 2-Way F 1.2 MLK Series, Sealed (BK)

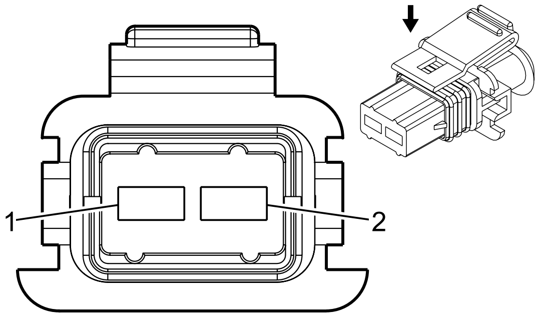
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-16 (LT GN)	Not Available	Not Available	Not Available	Not Available	Not Available

Q12 Evaporative Emission Purge Solenoid Valve (LCV)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	VT/L-BU	5293	Powertrain Main Relay Fused Supply (4)	I	-
2	0.5	L-GN/L-BU	428	EVAP Canister Purge Solenoid Control	I	-

Q12 Evaporative Emission Purge Solenoid Valve (LFX)



Connector Part Information

Harness Type: Engine

OEM Connector: 1928403137

Service Connector: 13585849

Description: 2-Way F Junior Power Timer Series, Sealed (BK)

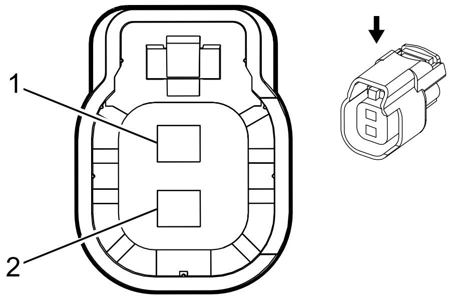
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-64B (LT BU)	Not Available	Not Available	Not Available	Not Available	Not Available

Q12 Evaporative Emission Purge Solenoid Valve (LFX)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	VT/L-BU	5293	Powertrain Main Relay Fused Supply (4)	I	-
2	0.5	L-GN/L-BU	428	EVAP Canister Purge Solenoid Control	I	-

Q13 Evaporative Emission Vent Solenoid Valve



Connector Part Information

Harness Type: Chassis

OEM Connector: 13503511

Service Connector: 13579002

Description: 2-Way F 1.5 Series, Sealed (BK)

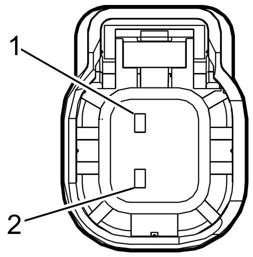
Terminal Part Information

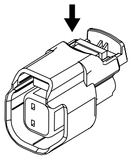
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-64B (LT BU)	Not Available	Not Available	Not Available	Not Available	Not Available

Q13 Evaporative Emission Vent Solenoid Valve

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	WH	1310	EVAP Canister Vent Solenoid Control	I	-
2	0.5	RD/L-GN	2440	Battery Positive Voltage	I	-

Q17A Fuel Injector 1 (LCV)





Connector Part Information

Harness Type: Fuel Rail

OEM Connector: 13503508

Service Connector: Service by Harness – See Part Catalog

Description: 2-Way F 1.5 Series Sealed (BK)

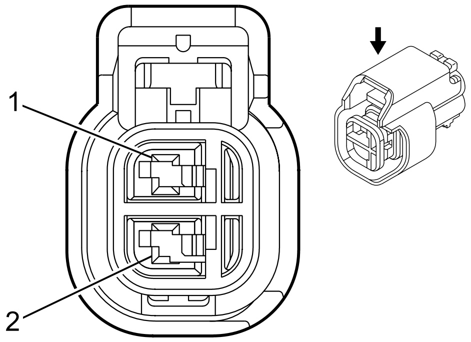
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available

Q17A Fuel Injector 1 (LCV)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	BN	4801	Direct Fuel Injector (DFI) High Voltage Control Cylinder 1	I	-
2	0.75	BN/WH	4901	Direct Fuel Injector (DFI) High Voltage Supply Cylinder 1	I	-

Q17A Fuel Injector 1 (LFX)



Connector Part Information

Harness Type: Bank 1 Fuel Rail

OEM Connector: E-2157

Service Connector: Service by Harness - See Part Catalog

Description: 2-Way F 1.5 Series, Sealed (BK)

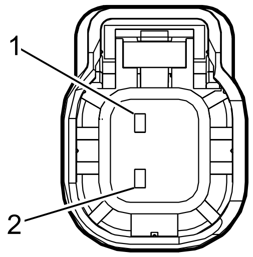
Terminal Part Information

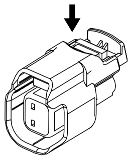
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available

Q17A Fuel Injector 1 (LFX)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BN	4801	Direct Fuel Injector (DFI) High Voltage Control Cylinder 1	I	-
2	0.5	BN/WH	4901	Direct Fuel Injector (DFI) High Voltage Supply Cylinder 1	I	-

Q17B Fuel Injector 2 (LCV)





Connector Part Information

Harness Type: Fuel Rail

OEM Connector: 13503508

Service Connector: Service by Harness – See Part Catalog

Description: 2-Way F 1.5 Series Sealed (BK)

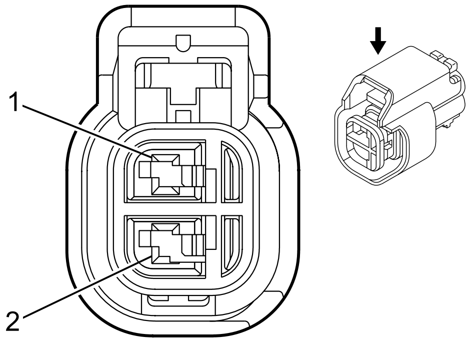
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available

Q17B Fuel Injector 2 (LCV)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	BU	4802	Direct Fuel Injector (DFI) High Voltage Control Cylinder 2	I	-
2	0.75	BU/GY	4902	Direct Fuel Injector (DFI) High Voltage Supply Cylinder 2	I	-

Q17B Fuel Injector 2 (LFX)



Connector Part Information

Harness Type: Bank 2 Fuel Rail

OEM Connector: E-2157

Service Connector: Service by Harness - See Part Catalog

Description: 2-Way F 1.5 Series, Sealed (BK)

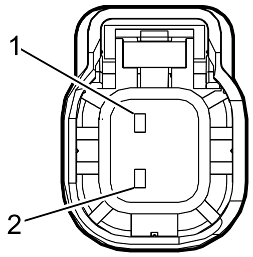
Terminal Part Information

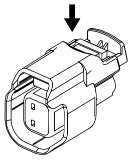
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available

Q17B Fuel Injector 2 (LFX)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	BU	4802	Direct Fuel Injector (DFI) High Voltage Control Cylinder 2	I	-
2	0.5	BU/GY	4902	Direct Fuel Injector (DFI) High Voltage Supply Cylinder 2	I	-

Q17C Fuel Injector 3 (LCV)





Connector Part Information

Harness Type: Fuel Rail

OEM Connector: 13503508

Service Connector: Service by Harness – See Part Catalog

Description: 2-Way F 1.5 Series Sealed (BK)

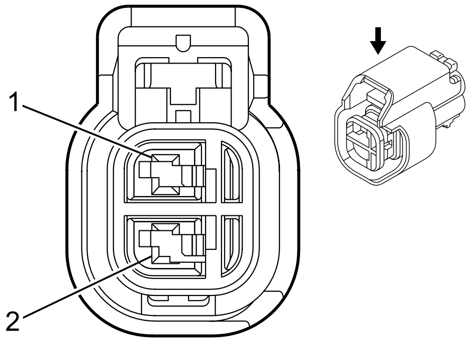
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available

Q17C Fuel Injector 3 (LCV)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	GN	4803	Direct Fuel Injector (DFI) High Voltage Control Cylinder 3	I	-
2	0.75	GN/GY	4903	Direct Fuel Injector (DFI) High Voltage Supply Cylinder 3	I	-

Q17C Fuel Injector 3 (LFX)



Connector Part Information

Harness Type: Bank 1 Fuel Rail

OEM Connector: E-2157

Service Connector: Service by Harness - See Part Catalog

Description: 2-Way F 1.5 Series, Sealed (BK)

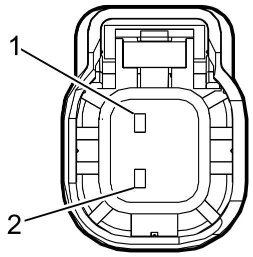
Terminal Part Information

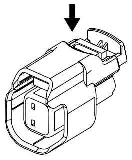
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available

Q17C Fuel Injector 3 (LFX)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	GN	4803	Direct Fuel Injector (DFI) High Voltage Control Cylinder 3	I	-
2	0.5	GN/GY	4903	Direct Fuel Injector (DFI) High Voltage Supply Cylinder 3	I	-

Q17D Fuel Injector 4 (LCV)





Connector Part Information

Harness Type: Fuel Rail

OEM Connector: 13503508

Service Connector: Service by Harness – See Part Catalog

Description: 2-Way F 1.5 Series Sealed (BK)

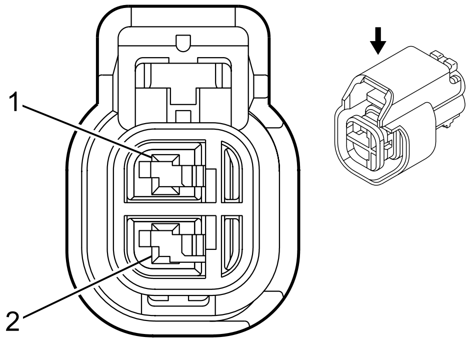
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available

Q17D Fuel Injector 4 (LCV)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	GY/BU	4804	Direct Fuel Injector (DFI) High Voltage Control Cylinder 4	I	-
2	0.75	BU/WH	4904	Direct Fuel Injector (DFI) High Voltage Supply Cylinder 4	I	-

Q17D Fuel Injector 4 (LFX)



Connector Part Information

Harness Type: Bank 2 Fuel Rail

OEM Connector: E-2157

Service Connector: Service by Harness - See Part Catalog

Description: 2-Way F 1.5 Series, Sealed (BK)

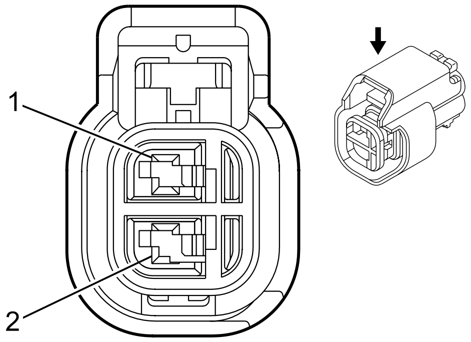
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available

Q17D Fuel Injector 4 (LFX)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	GY/BU	4804	Direct Fuel Injector (DFI) High Voltage Control Cylinder 4	I	-
2	0.5	BU/WH	4904	Direct Fuel Injector (DFI) High Voltage Supply Cylinder 4	I	-

Q17E Fuel Injector 5 (LFX)



Connector Part Information

Harness Type: Bank 1 Fuel Rail

OEM Connector: E-2157

Service Connector: Service by Harness - See Part Catalog

Description: 2-Way F 1.5 Series, Sealed (BK)

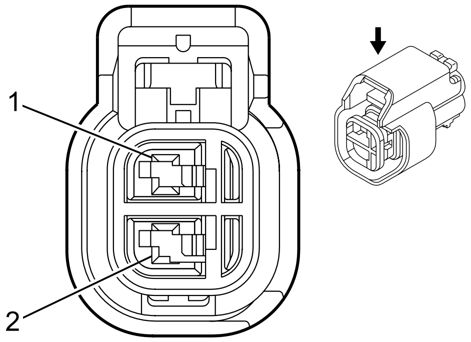
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available

Q17E Fuel Injector 5 (LFX)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	WH/GN	4805	Direct Fuel Injector (DFI) High Voltage Control Cylinder 5	I	-
2	0.5	GN/WH	4905	Direct Fuel Injector (DFI) High Voltage Supply Cylinder 5	I	-

Q17F Fuel Injector 6 (LFX)



Connector Part Information

Harness Type: Bank 2 Fuel Rail

OEM Connector: E-2157

Service Connector: Service by Harness - See Part Catalog

Description: 2-Way F 1.5 Series, Sealed (BK)

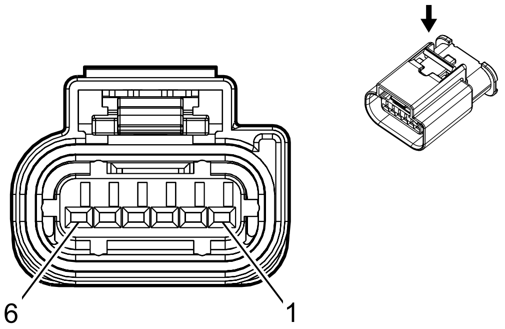
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available

Q17F Fuel Injector 6 (LFX)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	VT/GN	4806	Direct Fuel Injector (DFI) High Voltage Control Cylinder 6	I	-
2	0.5	VT/GY	4906	Direct Fuel Injector (DFI) High Voltage Supply Cylinder 6	I	-

Q38 Throttle Body



Connector Part Information

Harness Type: Engine

OEM Connector: 2138387-5

Service Connector: Service by Harness – See Part Catalog

Description: 6-Way F 1.2 Series, Sealed (BK)

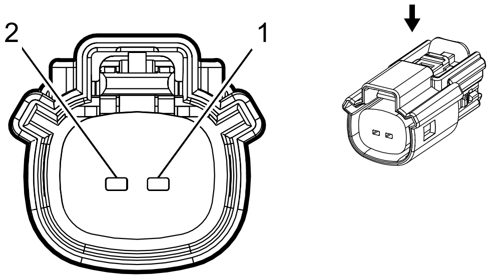
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available

Q38 Throttle Body

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	YE	581	Throttle Actuator Control Open	I	-
2	0.5	BN/WH	582	Throttle Actuator Control Close	I	-
3	0.5	BU/WH	3630	Throttle Position Sensor (SENT1) Signal	I	-
4	0.5	BK/BN	2752	Throttle Position Sensor Low Reference	I	-
5	0.5	BN/RD	2701	Throttle Position Sensor 5 Volt Reference	I	-
6	-	-	-	Not Occupied	-	-

Q44 Engine Oil Pressure Control Solenoid Valve (LCV)



Connector Part Information

Harness Type: Engine

OEM Connector: 33471-0206

Service Connector: 13577534

Description: 2-Way F 1.5 Series, Sealed (BK)

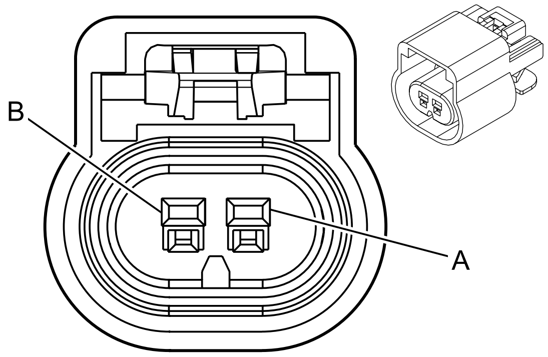
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-2A (GY)	Not Available	Not Available	Not Available	Not Available	Not Available

Q44 Engine Oil Pressure Control Solenoid Valve (LCV)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	VT/L-BU	5293	Powertrain Main Relay Fused Supply (4)	I	-
2	0.5	L-BU	179	Oil Pump Command Signal	I	-

R6A Terminating Resistor - High Speed Bus (LFX)



Connector Part Information

Harness Type: Chassis

OEM Connector: 19153731

Service Connector: 13580114

Description: 2-Way F 150 GT Series, Sealed (BK)

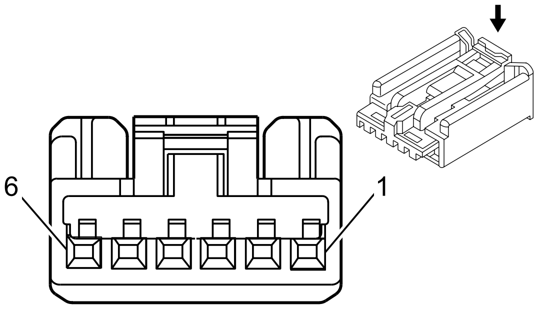
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-2A (GY)	Not Available	Not Available	Not Available	Not Available	Not Available

R6A Terminating Resistor - High Speed Bus (LFX)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	0.5	L-BU	2500	High Speed GMLAN Serial Data (+) (1)	I	-
B	0.5	WH	2501	High Speed GMLAN Serial Data (-) (1)	I	-

S3 Transmission Shift Lever (MYB)



Connector Part Information

Harness Type: Console

OEM Connector: AIT2PB-06-1AK

Service Connector: Service by Harness - See Part Catalog

Description: 6-Way F 0.64 Kaizen Series (BK)

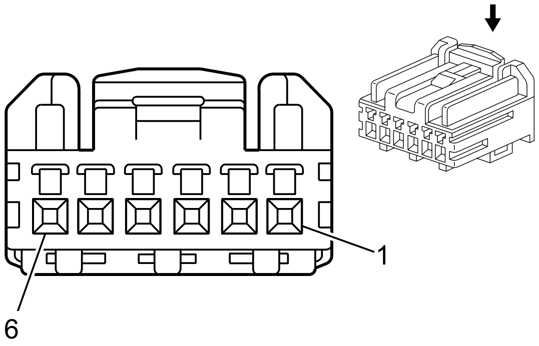
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-64B (L-BU)	Not Available	Not Available	Not Available	Not Available	Not Available

S3 Transmission Shift Lever (MYB)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	-	-	-	Not Occupied	-	-
2	0.5	BK	2050	Ground	I	-
3	0.35	VT/YE	5526	Tap Up/Tap Down Switch Signal	I	-
4	0.5	VT/BK	7553	Park Lock Solenoid Control	I	-
5	-	-	-	Not Occupied	-	-
6	0.5	WH/VT	5905	Key Capture/Column Lock Shift Position Signal	I	-

S13D Door Lock Switch - Driver



Connector Part Information

Harness Type: Driver Door

OEM Connector: HCMPB-C06-K

Service Connector: Service by Harness - See Part Catalog

Description: 6-Way F 0.64 HCM Series (BK)

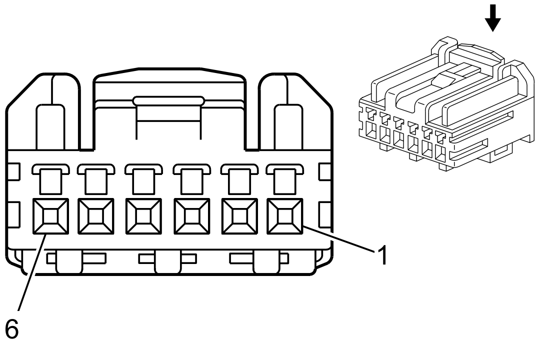
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-64B (L-BU)	Not Available	Not Available	Not Available	Not Available	Not Available

S13D Door Lock Switch - Driver

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	-	-	-	Not Occupied	-	-
2	0.35	YE	6817	LED Backlight Dimming Control	I	-
3	0.35	BN/WH	781	Driver Door Lock Switch Unlock Signal	I	-
4	0.35	BN/YE	780	Driver Door Lock Switch Lock Signal	I	-
5	0.5	BK	3550	Ground	I	-
6	-	-	-	Not Occupied	-	-

S13P Door Lock Switch - Passenger



Connector Part Information

Harness Type: Passenger Door

OEM Connector: HCMPB-C06-K

Service Connector: Service by Harness - See Part Catalog

Description: 6-Way F 0.64 HCM Series (BK)

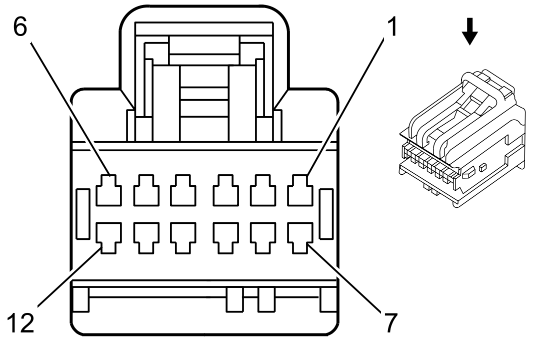
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-64B (L-BU)	Not Available	Not Available	Not Available	Not Available	Not Available

S13P Door Lock Switch - Passenger

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	-	-	-	Not Occupied	-	-
2	0.35	YE	6817	LED Backlight Dimming Control	I	-
3	0.35	BN/VT	245	Passenger Door Lock Switch Unlock Control	I	-
4	0.35	YE/VT	244	Passenger Door Lock Switch Lock Control	I	-
5	0.35	BK	3650	Ground	I	-
6	-	-	-	Not Occupied	-	-

S30 Headlamp Switch



Connector Part Information

Harness Type: Instrument Panel

OEM Connector: 31410-1120

Service Connector: 89047364

Description: 12-Way F 0.64 Series, Sealed (BK)

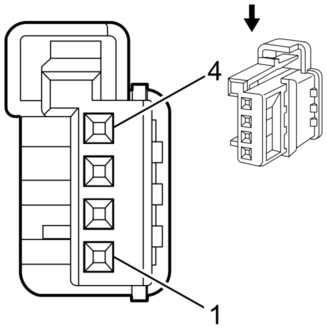
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	13575845	J-35616-64B (L-BU)	J-38125-215A	Not Available	Not Available	Not Available	Not Available

S30 Headlamp Switch

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	WH/VT	103	Headlamp Switch On Signal	I	-
2	0.5	YE	6817	LED Backlight Dimming Control	I	-
3	0.35	L-GN/BN	306	Headlamp Switch Headlamps Off Signal Control	I	-
4	-	-	-	Not Occupied	-	-
5	0.35	L-GN/GY	13	Headlamp Switch Park Lamp Signal	I	-
6	-	-	-	Not Occupied	-	-
7	0.35	BK/YE	5005	Instrument Panel Lamp Dimmer Switch Low Reference	I	-
8	0.35	BK/WH	2151	Signal Ground	I	-
9	-	-	-	Not Occupied	-	-
10	0.35	L-BU/GY	192	Front Fog Lamp Switch Signal	I	-
11	0.35	YE/GY	44	Instrument Panel Lamp Dimmer Switch Signal	I	-
12	0.35	L-BU/RD	1688	5 Volt Reference	I	-

S32D Seat Heating Switch - Driver (KA1)



Connector Part Information

Harness Type: Instrument Panel

OEM Connector: 1379029-2

Service Connector: 13576536

Description: 4-Way F 0.64 Micro Quadlock Series (WH)

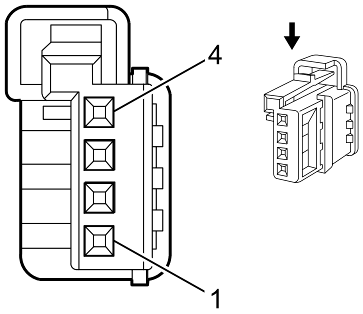
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-64B (L-BU)	Not Available	Not Available	Not Available	Not Available	Not Available

S32D Seat Heating Switch - Driver (KA1)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	BK	2050	Ground	I	-
2	-	-	-	Not Occupied	-	-
3	0.5	L-GN/WH	7527	Linear Interconnect Network Bus 5	I	-
4	0.5	RD/GY	2840	Battery Positive Voltage	I	-

S32P Seat Heating Switch - Passenger (KA1)



Connector Part Information

Harness Type: Instrument Panel

OEM Connector: 1379029-6

Service Connector: 13587956

Description: 4-Way F 0.64 Micro Quadlok Series (BN)

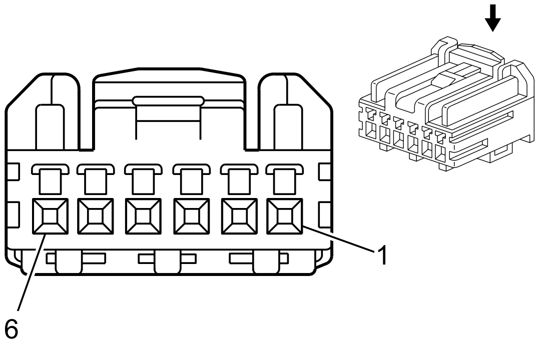
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-64B (L-BU)	Not Available	Not Available	Not Available	Not Available	Not Available

S32P Seat Heating Switch - Passenger (KA1)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	BK	2050	Ground	I	-
2	-	-	-	Not Occupied	-	-
3	0.5	L-GN/WH	7527	Linear Interconnect Network Bus 5	I	-
4	0.5	RD/GY	2840	Battery Positive Voltage	I	-

S39 Ignition Switch



Connector Part Information

Harness Type: Instrument Panel

OEM Connector: HCMPB-C06-K

Service Connector: 19153174

Description: 6-Way F 0.64 HCM Series (BK)

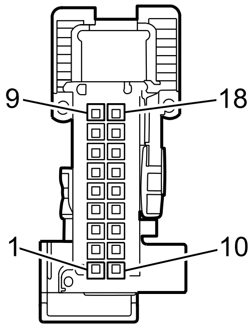
Terminal Part Information

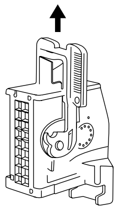
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-64B (LT BU)	Not Available	Not Available	Not Available	Not Available	Not Available

S39 Ignition Switch

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	VT/BK	3	Run/Crank Ignition 1 Voltage	I	-
2	0.5	RD/L-BU	540	Battery Positive Voltage	I	-
3	0.5	VT/YE	4	Accessory Voltage	I	-
4	0.5	WH/VT	1020	Off/Run/Crank Voltage	I	-
5	-	-	-	Not Occupied	-	-
6	0.5	WH/BK	1073	Ignition Key Resistor Signal	I	-

S48A Multifunction Switch – Instrument Panel





Connector Part Information

Harness Type: Instrument Panel

OEM Connector: 1379102-1

Service Connector: 13504129

Description: 18-Way F Micro Quadlock Series (BK)

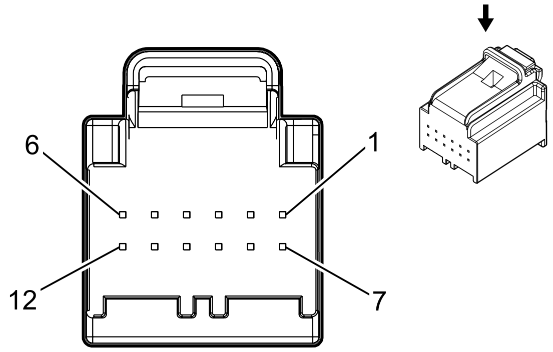
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	19329754	J-35616-64B (LT BU)	J-38125-12A	Not Available	Not Available	Not Available	Not Available

S48A Multifunction Switch – Instrument Panel

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	YE	6817	LED Backlight Dimming Control	I	-
2	0.35	WH	6816	Indicator Dimming Control	I	-
3	-	-	-	Not Occupied	-	-
4	0.35	L-BU/YE	6844	ABS/TCS Hill Descent Control Switch Signal	I	-
5	0.35	WH	3152	Lane Departure Warning Indicator Control	I	-
6-7	-	-	-	Not Occupied	-	-
8	0.35	GY/WH	3153	Lane Departure Warning Disable Switch Signal	I	-
9	-	-	-	Not Occupied	-	-
10	0.35	L-GN/WH	111	Hazard Switch Signal	I	-
11	0.35	L-BU/GY	553	Shift Select Switch Performance Signal	I	-
12-13	-	-	-	Not Occupied	-	-
14	0.35	BK	2050	Ground	I	-
15-16	-	-	-	Not Occupied	-	-
17	0.35	L-BU/VT	1788	Traction Control Switch Signal (1)	I	-
18	0.35	GY	158	Cargo Lamp Switch Signal	I	-

S52 Outside Rearview Mirror Switch (DL6/DL9)



Connector Part Information

Harness Type: Driver Door

OEM Connector: 31410-1121

Service Connector: Service by Harness - See Part Catalog

Description: 12-Way F 64 Series, Sealed (GY)

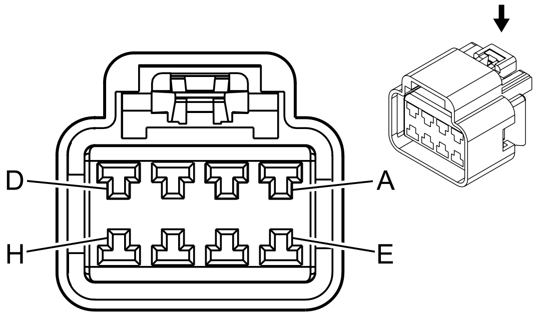
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-64B (L-BU)	Not Available	Not Available	Not Available	Not Available	Not Available

S52 Outside Rearview Mirror Switch (DL6/DL9)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	YE	6817	LED Backlight Dimming Control	I	-
2-4	-	-	-	Not Occupied	-	-
5	0.35	WH	3398	Co-Driver Mirror Motor Common Control	I	-
6	0.35	YE/BN	3391	Driver Mirror Motor Common Control	I	-
7	0.35	YE/VT	3397	Co-Driver Mirror Motor Up (+) Down (-) Control	I	-
8	0.35	VT/L-BU	3390	Driver Mirror Motor Up (+) Down (-) Control	I	-
9	0.35	L-GN/BK	3396	Co-Driver Mirror Motor Right (+) Left (-) Control	I	-
10	0.35	BN/BK	3389	Driver Mirror Motor Right (+) Left (-) Control	I	-
11	0.5	BK	3550	Ground	I	-
12	0.35	RD/VT	1940	Battery Positive Voltage	I	-

S64D Seat Adjuster Switch – Driver X1 (AL9)



Connector Part Information

Harness Type: Driver Seat Cushion

OEM Connector: 15326924

Service Connector: 13587188

Description: 8-Way F 280 GT Series (BK)

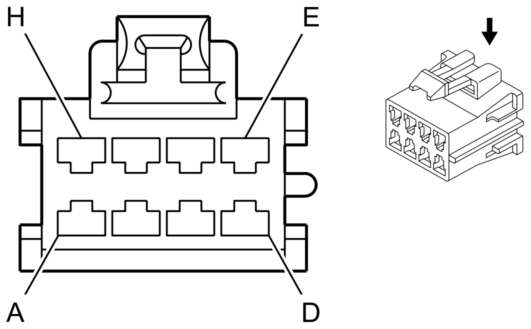
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	13580074	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available

S64D Seat Adjuster Switch – Driver X1 (AL9)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	1.5	YE	282	Driver Power Seat Rear Vertical Motor Up Control	I	-
B	2.5	BK	3750	Ground	I	-
C	1.5	YE/L-BU	285	Driver Power Seat Horizontal Motor Forward Control	I	-
D	2.5	RD/YE	5040	Battery Positive Voltage	I	-
E	-	-	-	Not Occupied	-	-
F	1.5	GY/L_GN	284	Driver Power Seat Horizontal Motor Rearward Control	I	-
G	-	-	-	Not Occupied	-	-
H	1.5	GY/L-BU	283	Driver Power Seat Rear Vertical Motor Down Control	I	-

S64D Seat Adjuster Switch – Driver X2 (AL9)



Connector Part Information

Harness Type: Driver Seat Cushion

OEM Connector: 12089287

Service Connector: 15306189

Description: 8-Way F 280 Metri-Pack Series (NA)

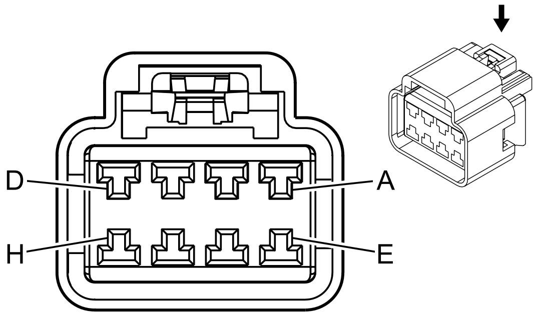
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Service by Harness – See Part Catalog	J-35616-4A (PU)	J-38125-11A	12066214	2	A	B
II	Service by Harness – See Part Catalog	J-35616-4A (PU)	J-38125-11A	12015858	4	F	G

S64D Seat Adjuster Switch – Driver X2 (AL9)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	1.5	VT	610	Driver Power Seat Lumbar Motor Rearward Control	I	-
B-C	-	-	-	Not Occupied	-	-
D	1.5	L-BU	611	Driver Power Seat Lumbar Motor Forward Control	I	-
E	2.5	RD/BN	5040	Battery Positive Voltage	II	-
F-G	-	-	-	Not Occupied	-	-
H	2.5	BK	3750	Ground	II	-

S64P Seat Adjuster Switch - Passenger X1 (AAQ)



Connector Part Information

Harness Type: Passenger Seat Cushion

OEM Connector: 15326924

Service Connector: 13587188

Description: 8-Way F 280 GT Series (BK)

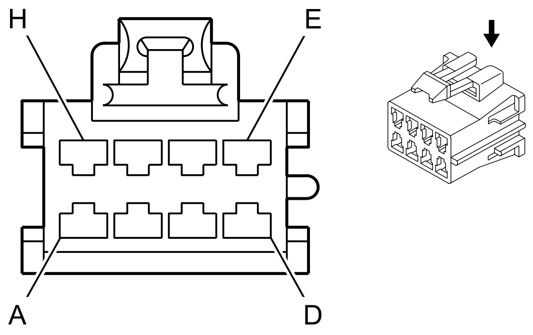
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	13580074	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available

S64P Seat Adjuster Switch - Passenger X1 (AAQ)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	1.5	L-BU/WH	289	Passenger Power Seat Rear Vertical Motor Down Control	I	-
B	2.5	BK	3850	Ground	I	-
C	1.5	YE/WH	296	Passenger Power Seat Horizontal Motor Forward Control Control	I	-
D	2.5	RD/BN	1440	Battery Positive Voltage	I	-
E	-	-	-	Not Occupied	-	-
F	1.5	YE/L-BU	290	Passenger Power Seat Horizontal Motor Rearward Control	I	-
G	-	-	-	Not Occupied	-	-
H	1.5	L-GN/WH	288	Passenger Power Seat Rear Vertical Motor Up Control	I	-

S64P Seat Adjuster Switch - Passenger X2 (AAQ)



Connector Part Information

Harness Type: Passenger Seat Cushion

OEM Connector: 12089287

Service Connector: 15306189

Description: 8-Way F 280 Metri-Pack Series (NA)

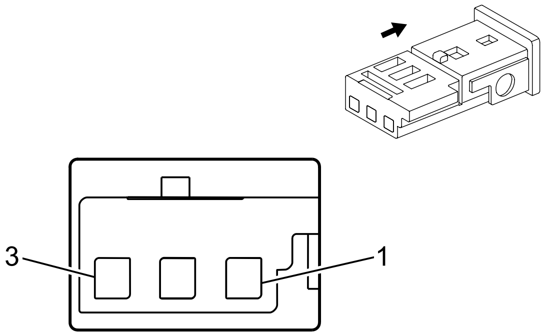
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Service by Harness – See Part Catalog	J-35616-4A (PU)	J-38125-11A	12066214	2	A	B
II	Service by Harness – See Part Catalog	J-35616-4A (PU)	J-38125-11A	12015858	4	F	G

S64P Seat Adjuster Switch - Passenger X2 (AAQ)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	1.5	VT	210	Passenger Power Seat Lumbar Motor Rearward Control	I	-
B-C	-	-	-	Not Occupied	-	-
D	1.5	L-BU	211	Passenger Power Seat Lumbar Motor Forward Control	I	-
E	2.5	RD/BN	1440	Battery Positive Voltage	II	-
F-G	-	-	-	Not Occupied	-	-
H	2.5	BK	3850	Ground	II	-

S70E Steering Wheel Controls Switch - Radio Presets (W1Y)



Connector Part Information

Harness Type: Steering Wheel

OEM Connector: 13153088

Service Connector: 13314078

Description: 3-Way F 0.64 Micro-Quadlock Series (BK)

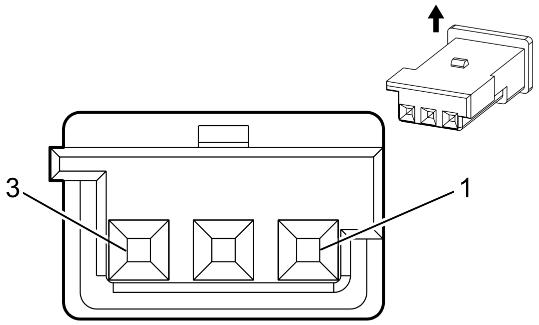
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available

S70E Steering Wheel Controls Switch - Radio Presets (W1Y)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	WH/YE	4313	Radio Favorite Forward Signal	I	-
2	0.35	YE/L-BU	4312	Radio Favorite Back Signal	I	-
3	0.35	BK	2050	Ground	I	-

S70F Steering Wheel Controls Switch - Radio Volume (W1Y)



Connector Part Information

Harness Type: Steering Wheel

OEM Connector: 19153569

Service Connector: 13576530

Description: 3-Way F Micro-Quadlock Series (PU)

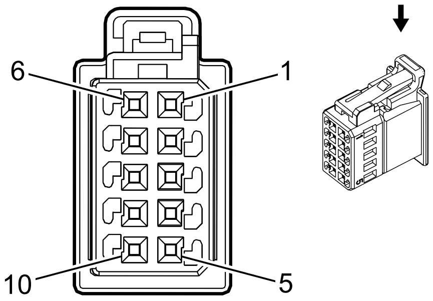
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available

S70F Steering Wheel Controls Switch - Radio Volume (W1Y)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	L-BU	4315	Radio Volume Up Signal	I	-
2	0.35	GY/BN	4314	Radio Volume Down Signal	I	-
3	0.35	BK	2050	Ground	I	-

S70L Steering Wheel Controls Switch - Left



Connector Part Information

Harness Type: Steering Wheel

OEM Connector: 13582766

Service Connector: 19299776

Description: 10-Way F 0.64 MQS Series (BK)

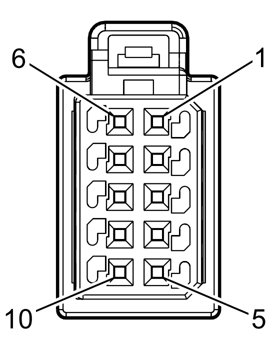
Terminal Part Information

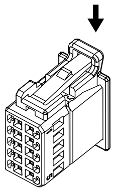
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-64B (L-BU)	Not Available	Not Available	Not Available	Not Available	Not Available

S70L Steering Wheel Controls Switch - Left

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	BK	2050	Ground	I	-
2	-	-	-	Not Occupied	-	-
3	0.35	GY/OG	5737	Adaptive Cruise Control Gap Up/Down Switch Signal	I	UEU
4	0.35	BN/YE	1884	Cruise Control Set/Coast/Resume/Accelerate Switch Signal	I	-
5	-	-	-	Not Occupied	-	-
6	0.35 0.35	BN YE	6136 6817	Supply Voltage LED Backlight Dimming Control	I	-W1Y W1Y
7-8	-	-	-	Not Occupied	-	-
9	0.35	WH	1444	12 Volt Reference	I	-
10	0.35	RD/YE	3040	Battery Positive Voltage	I	-

S70R Steering Wheel Controls Switch - Right





Connector Part Information

Harness Type: Steering Wheel

OEM Connector: 13582767

Service Connector: Service by Harness - See Part Catalog

Description: 10-Way F 0.64 Micro-Quadlock Series (BK)

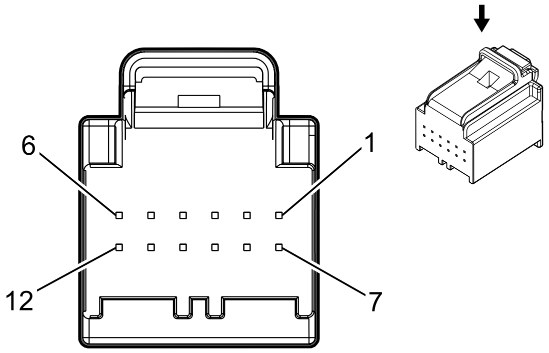
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available

S70R Steering Wheel Controls Switch - Right

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35 0.35	BN YE	6136 6817	Supply Voltage LED Backlight Dimming Control	I	-W1Y W1Y
2	0.35	WH/RD	1444	12 Volt Reference	I	-W1Y
3	0.35	L-GN/BK	3894	Local Interconnect Network Bus 12	I	-
4	0.35	L-GN	6818	Steering Wheel Resistor Ladder Signal #1	I	-W1Y
5	0.35	RD/YE	3040	Battery Positive Voltage	I	-
6	0.35	BK	2050	Ground	I	-
7	.75	L-BU	4315	Radio Volume Up Signal	I	W1Y
8	0.75	GY/BN	4314	Radio Volume Down Signal	I	W1Y
9	0.35	WH/YE	4313	Radio Favorite Forward Signal	I	W1Y
10	0.35	YE/L-BU	4312	Radio Favorite Back Signal	I	W1Y

S77 Transfer Case Shift Control Switch (NQ6/NQ7)



Connector Part Information

Harness Type: Instrument Panel

OEM Connector: 31410-1121

Service Connector: 19151154

Description: 12-Way F 64 Series, Sealed (GY)

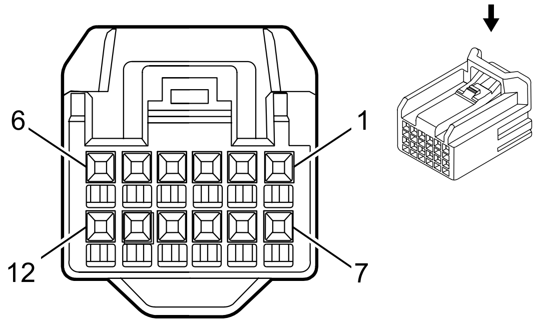
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	13575845	J-35616-64B (L-BU)	J-38125-215A	Not Available	Not Available	Not Available	Not Available

S77 Transfer Case Shift Control Switch (NQ6/NQ7)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	-	-	-	Not Occupied	-	-
2	0.5	VT/BN	300	Run Ignition 3 Voltage	I	-
3	0.35	BN	1560	Neutral Indicator Control	I	-
4	0.35	WH	6816	Indicator Dimming Control	I	-
5	0.35	YE	6817	LED Backlight Dimming Control	I	-
6	0.5	BK	2050	Ground	I	-
7	0.35	GY/L-GN	1561	AWD Indicator Control	I	-
8	0.35	L-GN/BK	1563	2 HI Indicator Control	I	-
9	0.35	BN/BK	1566	4 HI Indicator Control	I	-
10	0.35	VT/WH	1565	4 LO Indicator Control	I	-
11	0.35	GY/RD	6029	Four Wheel Drive Mode Switch 5 Volt Reference	I	-
12	0.35	L-BU/YE	1693	Four Wheel Drive Switch Signal	I	-

S78 Turn Signal/Multifunction Switch



Connector Part Information

Harness Type: Instrument Panel

OEM Connector: SHC2PB-12-2AK

Service Connector: 13576635

Description: 12-Way F 0.64 Series (BK)

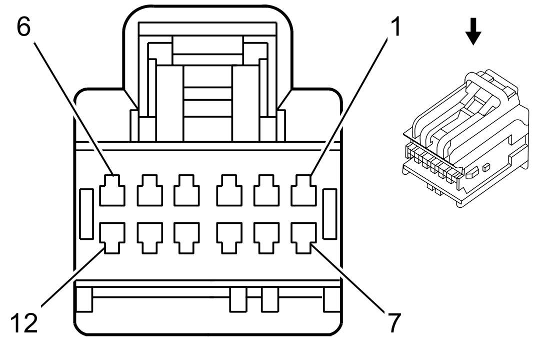
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	13575870	J-35616-35 (VT)	J-38125-12A	Not Available	Not Available	Not Available	Not Available

S78 Turn Signal/Multifunction Switch

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	WH/L-GN	663	Hazard Switch Left Turn Signal	I	-
2	0.35	WH	524	Headlamp Dimmer Switch High Beam Signal	I	-
3	0.35	BK/WH	2151	Signal Ground	I	-
4	0.35	YE/BN	307	Headlamp Switch Flash To Pass Signal	I	-
5	0.35	GY/L-BU	893	Driver Information Center Select Menu Switch Signal	I	-
6	0.35	BK/BN	897	Driver Information Center Switch Low Reference	I	-
7	0.35	VT/L-BU	664	Hazard Switch Right Turn Signal	I	-
8-11	-	-	-	Not Occupied	-	-
12	0.35	L-GN/WH	1358	Driver Information Center Switch Signal	I	-

S79D Window Switch - Driver (AXG)



Connector Part Information

Harness Type: Driver Door

OEM Connector: 31410-1120

Service Connector: Service by Harness - See Part Catalog

Description: 12-Way F 0.64 Series, Sealed (BK)

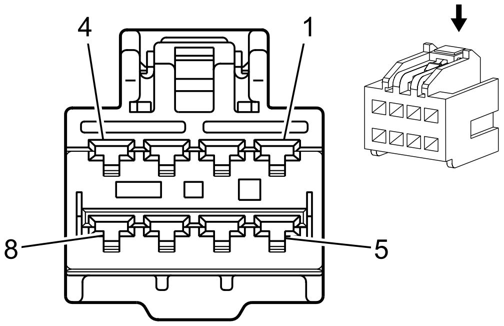
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-64B (L-BU)	Not Available	Not Available	Not Available	Not Available	Not Available

S79D Window Switch - Driver (AXG)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	BK	3550	Ground	I	-
2	0.35	L-GN/VT	7628	Power Window Motor Left Front Express Control	I	-
3	0.35	GY	1136	Power Window Master Switch Left Front Down Signal	I	-
4	0.5	RD/VT	1940	Battery Positive Voltage	I	-
5	0.5	L-GN/YE	6134	Linear Interconnect Network Bus 3	I	-
6	0.35	L-GN/WH	1300	Power Window Master Switch Left Front Up Signal	I	-
7	0.35	WH/VT	3270	Driver Door Lock Motor Status	I	-
8	0.35	L-BU/VT	1124	Door Lock Key Switch Unlock Signal	I	-
9	-	-	-	Not Occupied	-	-
10	0.35	YE/BN	3265	Child Security Lock Switch Signal	I	-
11	0.35	WH	6816	Indicator Dimming Control	I	-
12	0.35	GY	5697	Child Lockout Indicator	I	-

S79LR Window Switch - Left Rear (Crew Cab with AXG)



Connector Part Information

Harness Type: Left Rear Door

OEM Connector: 6098-4713

Service Connector: Service by Harness - See Part Catalog

Description: 8-Way F 2.8 Series (BK)

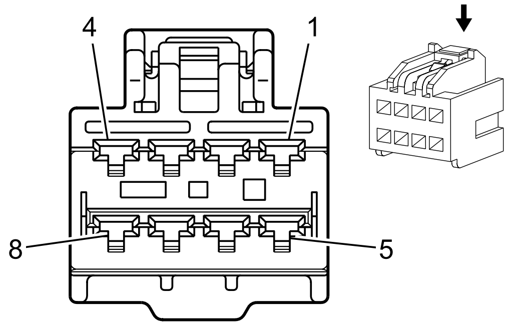
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-64B (L-BU)	Not Available	Not Available	Not Available	Not Available	Not Available

S79LR Window Switch - Left Rear (Crew Cab with AXG)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	L-GN/GY	6135	Linear Interconnect Network Bus 4	I	-
2	0.35	GY	747	Left Rear Door Ajar Switch Signal	I	-
3	0.35	BK	3350	Ground	I	-
4	-	-	-	Not Occupied	-	-
5	2.5	BK	3350	Ground	I	-
6	2.5	L-BU/VT	668	Power Window Motor Left Rear Up Control	I	-
7	2.5	YE/L-BU	669	Power Window Motor Left Rear Down Control	I	-
8	2.5	RD/L-BU	1240	Battery Positive Voltage	I	-

S79P Window Switch - Passenger (AXG)



Connector Part Information

Harness Type: Passenger Door

OEM Connector: 6098-4713

Service Connector: Service by Harness - See Part Catalog

Description: 8-Way F 2.8 Series (BK)

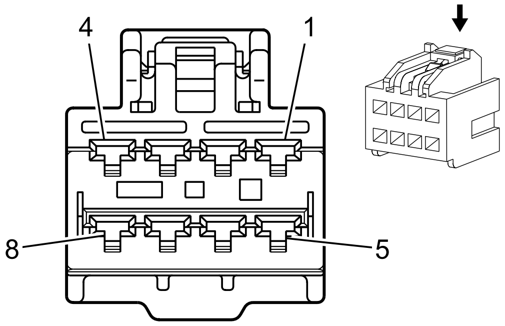
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-64B (L-BU)	Not Available	Not Available	Not Available	Not Available	Not Available

S79P Window Switch - Passenger (AXG)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	2.5	BK	3650	Ground	I	-
2	2.5	L-GN/GY	3387	Power Window Motor Co-Driver Up Control	I	-
3	2.5	YE/L-BU	3388	Power Window Motor Co-Driver Down Control	I	-
4	2.5	RD/WH	1340	Battery Positive Voltage	I	-
5	0.5	L-GN/YE	6134	Linear Interconnect Network Bus 3	I	-
6-7	-	-	-	Not Occupied	-	-
8	0.35	GY	746	Right Front Door Ajar Switch Signal	I	-

S79RR Window Switch - Right Rear (Crew Cab with AXG)



Connector Part Information

Harness Type: Right Rear Door

OEM Connector: 6098-4713

Service Connector: Service by Harness - See Part Catalog

Description: 8-Way F 2.8 Series (BK)

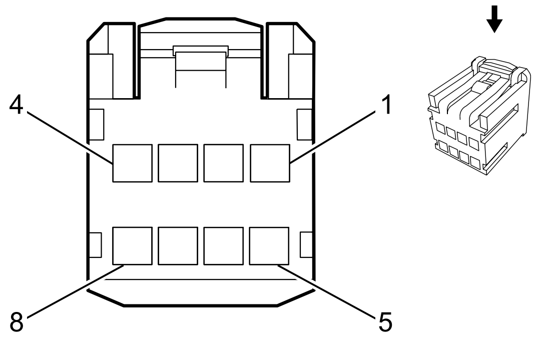
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-64B (L-BU)	Not Available	Not Available	Not Available	Not Available	Not Available

S79RR Window Switch - Right Rear (Crew Cab with AXG)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	L-GN/GY	6135	Linear Interconnect Network Bus 4	I	-
2	0.35	GY	748	Right Rear Door Ajar Switch Signal	I	-
3-4	-	-	-	Not Occupied	-	-
5	2.5	BK	3450	Ground	I	-
6	2.5	L-BU/GY	670	Power Window Motor Right Rear Up Control	I	-
7	2.5	L-GN/BK	671	Power Window Motor Right Rear Down Control	I	-
8	2.5	RD/WH	1340	Battery Positive Voltage	I	-

S82 Windshield Wiper/Washer Switch



Connector Part Information

Harness Type: Instrument Panel

OEM Connector: HCMDPB-08-K

Service Connector: 13576541

Description: 8-Way F 1.2 HCM Series (BK)

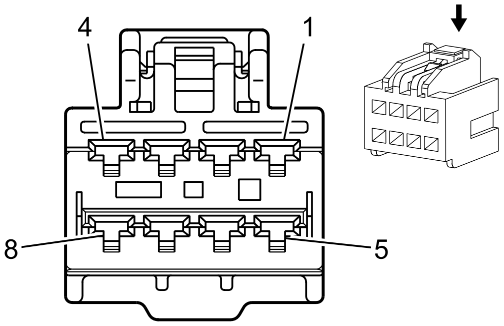
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-64B (LT BU)	Not Available	Not Available	Not Available	Not Available	Not Available

S82 Windshield Wiper/Washer Switch

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	GY	1715	Windshield Wiper Switch High Signal	I	-
2	0.35	BK/GY	6009	Windshield Wiper Switch Low Reference	I	-
3	0.35	YE/L-BU	1714	Windshield Wiper Switch Low Signal	I	-
4	-	-	-	Not Occupied	-	-
5	0.35	WH/BK	94	Windshield Washer Switch Signal	I	-
6-8	-	-	-	Not Occupied	-	-

T3 Audio Amplifier X1 (UQA)



Connector Part Information

Harness Type: Instrument Panel

OEM Connector: 6098-4713

Service Connector: 13580111

Description: 8-Way F 2.8 Series (BK)

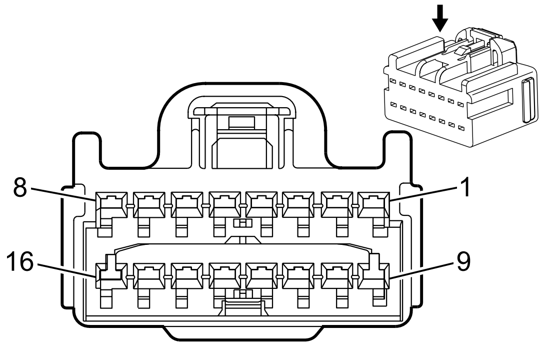
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-64B (LT BU)	Not Available	Not Available	Not Available	Not Available	Not Available

T3 Audio Amplifier X1 (UQA)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	1	YE	200	Right Front Speaker (+) (1)	I	-
2	-	-	-	Not Occupied	-	-
3	1	L-BU	201	Left Front Speaker (+) (1)	I	-
4	2.5	RD/YE	3740	Battery Positive Voltage	I	-
5	1	YE/BK	117	Right Front Speaker Signal (-) (1)	I	-
6	-	-	-	Not Occupied	-	-
7	1	BN/L-BU	118	Left Front Speaker Signal (-) (1)	I	-
8	2.5	BK/WH	2251	Signal Ground	I	-

T3 Audio Amplifier X2 (UQA)



Connector Part Information

Harness Type: Instrument Panel

OEM Connector: 7283-6453-60

Service Connector: 89047090

Description: 16-Way F 1.5 Kaizen Series (GN)

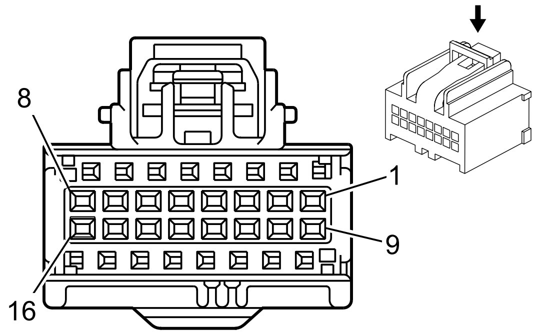
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	13575829	J-35616-2A (GY)	J-38125-11A	Not Available	Not Available	Not Available	Not Available

T3 Audio Amplifier X2 (UQA)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1-2	-	-	-	Not Occupied	-	-
3	0.75	YE/WH	1860	Front Center Speaker (+)	I	-
4	0.75	YE	200	Right Front Speaker (+) (1)	I	-
5	0.75	L-BU	201	Left Front Speaker (+) (1)	I	-
6	1	WH	46	Right Rear Speaker (+)	I	-
7	1	L-GN	199	Left Rear Speaker (+)	I	-
8-10	-	-	-	Not Occupied	-	-
11	0.75	L-BU/YE	1960	Front Center Speaker (-)	I	-
12	0.75	YE/BK	117	Right Front Speaker Signal (-) (1)	I	-
13	0.75	BN/L-BU	118	Left Front Speaker Signal (-) (1)	I	-
14	1	L-BU/BK	115	Right Rear Speaker Signal (-)	I	-
15	1	L-GN/BK	116	Left Rear Speaker Signal (-)	I	-
16	-	-	-	Not Occupied	-	-

T3 Audio Amplifier X3 (UQA)



Connector Part Information

Harness Type: Instrument Panel

OEM Connector: 7283-9076-30

Service Connector: 15136073

Description: 16-Way F Kaizen 64 Series (BK)

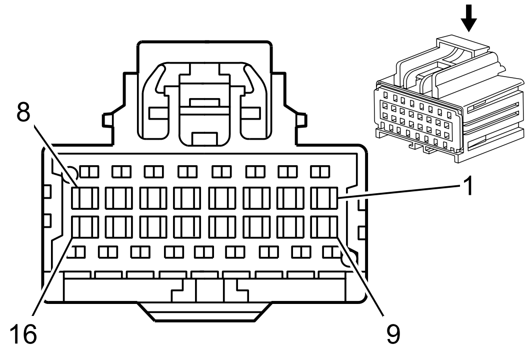
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	19303553	J-35616-64B (L-BU)	J-38125-11A	Not Available	Not Available	Not Available	Not Available

T3 Audio Amplifier X3 (UQA)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.75	L-GN	5060	Low Speed GMLAN Serial Data	I	-
2-16	-	-	-	Not Occupied	-	-

T3 Audio Amplifier X4 (UQA)



Connector Part Information

Harness Type: Instrument Panel

OEM Connector: 7283-9078-80

Service Connector: 15136074

Description: 16-Way F 0.64 Kaizen Series (BN)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	13575845	J-35616-64B (L-BU)	J-38125-215A	Not Available	Not Available	Not Available	Not Available

T3 Audio Amplifier X4 (UQA)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1-2	-	-	-	Not Occupied	-	-
3	0.5	WH/L-GN	3997	MOST Serial Data (-)	I	-
4	0.5	GY/VT	3998	MOST Serial Data (+)	I	-
5	0.5	WH/L-GN	3997	MOST Serial Data (-)	I	-
6	0.5	GY/VT	3998	MOST Serial Data (+)	I	-
7-13	-	-	-	Not Occupied	-	-
14	0.35	WH/VT	3999	MOST Control	I	-
15-16	-	-	-	Not Occupied	-	-

T4G Cellular Phone, Navigation, and Digital Radio Antenna (UE1)

Connector Part Information

Harness Type: Body COAX

OEM Connector: COAX

Service Connector: Service by Cable Assembly — See Part Catalog

Description: 1-Way F Coax Type (VT)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available

T4G Cellular Phone, Navigation, and Digital Radio Antenna (UE1)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
-	-	COAX	-	(GPS/Cell) Coaxial Antenna Cell/GPS combined Signal	I	-

T4H Digital Radio Antenna (U2M)

Connector Part Information

Harness Type: Body COAX

OEM Connector: COAX

Service Connector: Service by Cable Assembly — See Part Catalog

Description: 1-Way F Coax Type (VT)

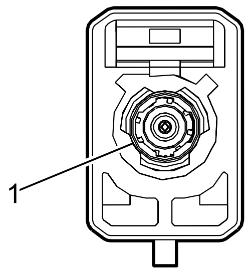
Terminal Part Information

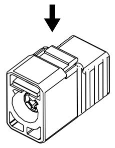
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available

T4H Digital Radio Antenna (U2M)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
-	-	COAX	-	(XM +/-HD) Coaxial Antenna XM Signal	I	-

T4M Radio Antenna (Without U2M)





Connector Part Information

Harness Type: Body COAX

OEM Connector: 13581685

Service Connector: Service by Cable Assembly - See Part Catalog

Description: 2-Way F Coax Type (BK)

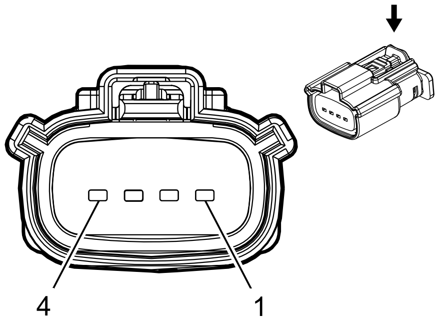
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available

T4M Radio Antenna (Without U2M)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
-	-	COAX	-	(AM/FM) Antenna RF Signal	I	-

T8A Ignition Coil 1 (LCV)



Connector Part Information

Harness Type: Engine

OEM Connector: 33471-0461

Service Connector: 19299695

Description: 4-Way F 1.5 Series, Sealed (BK)

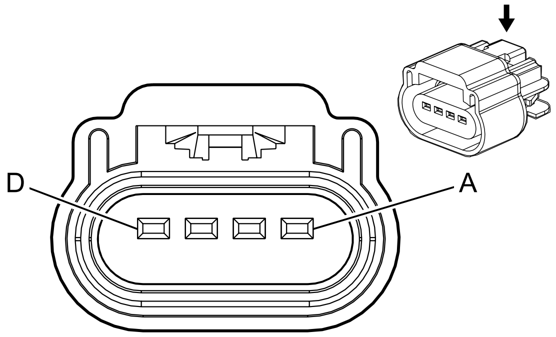
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-2A (GY)	Not Available	Not Available	Not Available	Not Available	Not Available

T8A Ignition Coil 1 (LCV)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	1	BK	1450	Ground	I	-
2	0.5	BK/L-BU	2129	Ignition Control Low Reference Bank 1	I	-
3	0.5	L-BU/VT	2121	Ignition Control (1)	I	-
4	1	VT/L-BU	5291	Powertrain Main Relay Fused Supply (2)	I	-

T8A Ignition Coil 1 (LFX)



Connector Part Information

Harness Type: Engine

OEM Connector: 15466325

Service Connector: 13585847

Description: 4-Way F 150 GT Series, Sealed (BK)

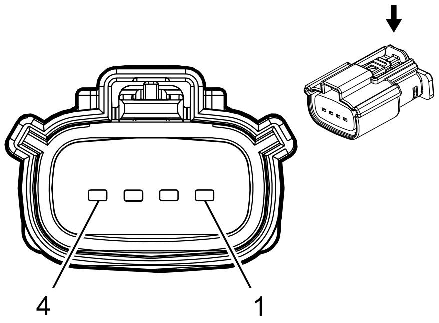
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-64B (LT BU)	Not Available	Not Available	Not Available	Not Available	Not Available
II	Not Available	J-35616-2A (GY)	Not Available	Not Available	Not Available	Not Available	Not Available

T8A Ignition Coil 1 (LFX)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	1	BK	1450	Ground	I	-
B	0.5	BK/L-BU	2129	Ignition Control Low Reference Bank 1	II	-
C	0.5	L-BU/VT	2121	Ignition Control (1)	II	-
D	1	VT/L-BU	5291	Powertrain Main Relay Fused Supply (2)	I	-

T8B Ignition Coil 2 (LCV)



Connector Part Information

Harness Type: Engine

OEM Connector: 33471-0461

Service Connector: 19299695

Description: 4-Way F 1.5 Series, Sealed (BK)

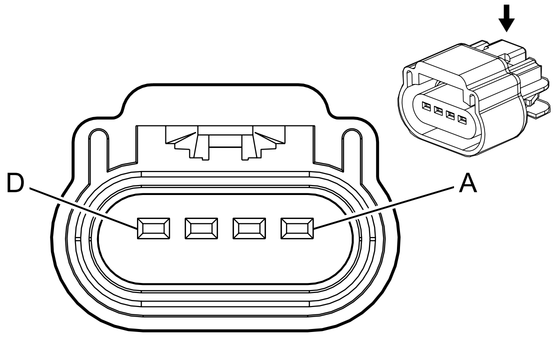
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-2A (GY)	Not Available	Not Available	Not Available	Not Available	Not Available

T8B Ignition Coil 2 (LCV)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	1	BK	1450	Ground	I	-
2	0.5	BK/L-BU	2129	Ignition Control Low Reference Bank 1	I	-
3	0.5	L-BU/WH	2122	Ignition Control (2)	I	-
4	1	VT/L-BU	5291	Powertrain Main Relay Fused Supply (2)	I	-

T8B Ignition Coil 2 (LFX)



Connector Part Information

Harness Type: Engine

OEM Connector: 15466325

Service Connector: 13585847

Description: 4-Way F 150 GT Series, Sealed (BK)

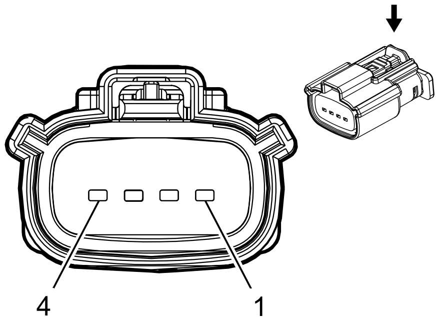
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-64B (LT BU)	Not Available	Not Available	Not Available	Not Available	Not Available
II	Not Available	J-35616-2A (GY)	Not Available	Not Available	Not Available	Not Available	Not Available

T8B Ignition Coil 2 (LFX)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	1	BK	1550	Ground	I	-
B	0.5	BK/GY	2130	Ignition Control Low Reference Bank 2	II	-
C	0.5	L-BU/WH	2122	Ignition Control (2)	II	-
D	1	VT/L-BU	5292	Powertrain Main Relay Fused Supply (3)	I	-

T8C Ignition Coil 3 (LCV)



Connector Part Information

Harness Type: Engine

OEM Connector: 33471-0461

Service Connector: 19299695

Description: 4-Way F 1.5 Series, Sealed (BK)

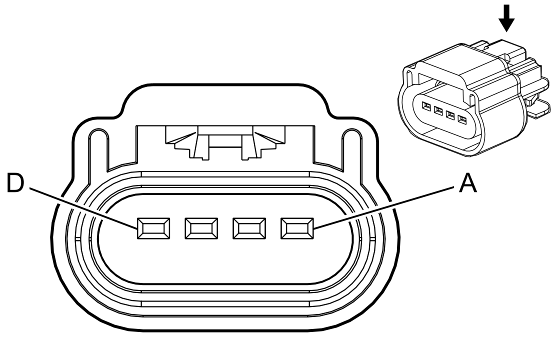
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-2A (GY)	Not Available	Not Available	Not Available	Not Available	Not Available

T8C Ignition Coil 3 (LCV)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	1	BK	1450	Ground	I	-
2	0.5	BK/L-BU	2129	Ignition Control Low Reference Bank 1	I	-
3	0.5	L-GN/L-BU	2123	Ignition Control (3)	I	-
4	1	VT/L-BU	5291	Powertrain Main Relay Fused Supply (2)	I	-

T8C Ignition Coil 3 (LFX)



Connector Part Information

Harness Type: Engine

OEM Connector: 15466325

Service Connector: 13585847

Description: 4-Way F 150 GT Series, Sealed (BK)

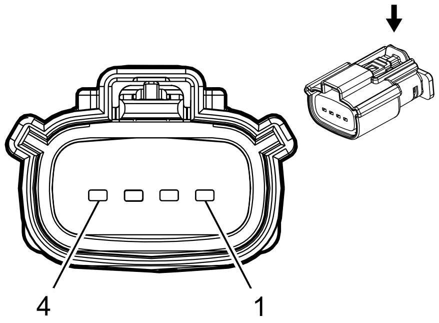
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-64B (LT BU)	Not Available	Not Available	Not Available	Not Available	Not Available
II	Not Available	J-35616-2A (GY)	Not Available	Not Available	Not Available	Not Available	Not Available

T8C Ignition Coil 3 (LFX)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	1	BK	1450	Ground	I	-
B	0.5	BK/L-BU	2129	Ignition Control Low Reference Bank 1	II	-
C	0.5	L-GN/L-BU	2123	Ignition Control (3)	II	-
D	1	VT/L-BU	5291	Powertrain Main Relay Fused Supply (2)	I	-

T8D Ignition Coil 4 (LCV)



Connector Part Information

Harness Type: Engine

OEM Connector: 33471-0461

Service Connector: 19299695

Description: 4-Way F 1.5 Series, Sealed (BK)

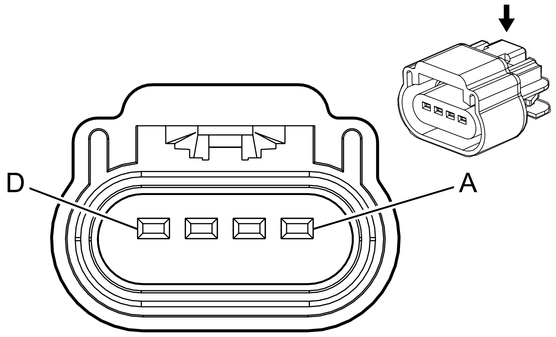
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-2A (GY)	Not Available	Not Available	Not Available	Not Available	Not Available

T8D Ignition Coil 4 (LCV)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	1	BK	1450	Ground	I	-
2	0.5	BK/L-BU	2129	Ignition Control Low Reference Bank 1	I	-
3	0.5	YE/L-BU	2124	Ignition Control (4)	I	-
4	1	VT/L-BU	5291	Powertrain Main Relay Fused Supply (2)	I	-

T8D Ignition Coil 4 (LFX)



Connector Part Information

Harness Type: Engine

OEM Connector: 15466325

Service Connector: 13585847

Description: 4-Way F 150 GT Series, Sealed (BK)

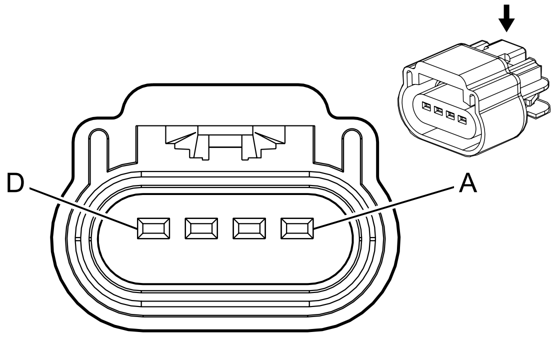
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-64B (LT BU)	Not Available	Not Available	Not Available	Not Available	Not Available
II	Not Available	J-35616-2A (GY)	Not Available	Not Available	Not Available	Not Available	Not Available

T8D Ignition Coil 4 (LFX)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	1	BK	1550	Ground	I	-
B	0.5	BK/GY	2130	Ignition Control Low Reference Bank 2	II	-
C	0.5	YE/L-BU	2124	Ignition Control (4)	II	-
D	1	VT/L-BU	5292	Powertrain Main Relay Fused Supply (3)	I	-

T8E Ignition Coil 5 (LFX)



Connector Part Information

Harness Type: Engine

OEM Connector: 15466325

Service Connector: 13585847

Description: 4-Way F 150 GT Series, Sealed (BK)

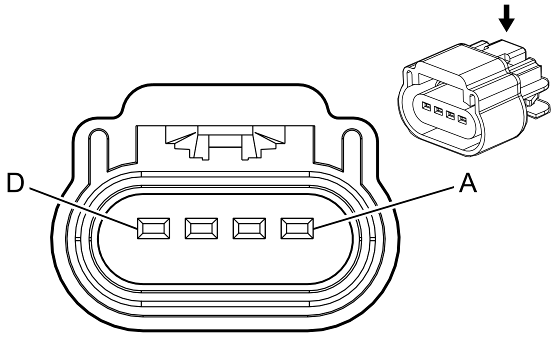
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-64B (LT BU)	Not Available	Not Available	Not Available	Not Available	Not Available
II	Not Available	J-35616-2A (GY)	Not Available	Not Available	Not Available	Not Available	Not Available

T8E Ignition Coil 5 (LFX)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	1	BK	1450	Ground	I	-
B	0.5	BK/L-BU	2129	Ignition Control Low Reference Bank 1	II	-
C	0.5	L-BU/GY	2125	Ignition Control (5)	II	-
D	1	VT/L-BU	5291	Powertrain Main Relay Fused Supply (2)	I	-

T8F Ignition Coil 6 (LFX)



Connector Part Information

Harness Type: Engine

OEM Connector: 15466325

Service Connector: 13585847

Description: 4-Way F 150 GT Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-64B (LT BU)	Not Available	Not Available	Not Available	Not Available	Not Available
II	Not Available	J-35616-2A (GY)	Not Available	Not Available	Not Available	Not Available	Not Available

T8F Ignition Coil 6 (LFX)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	1	BK	1550	Ground	I	-
B	0.5	BK/GY	2130	Ignition Control Low Reference Bank 2	II	-
C	0.5	BN/L-BU	2126	Ignition Control (6)	II	-
D	1	VT/L-BU	5292	Powertrain Main Relay Fused Supply (3)	I	-

T15 Navigation Antenna Signal Splitter X1 (IO6)

Connector Part Information

Harness Type: Body COAX

OEM Connector: COAX

Service Connector: Service by Cable Assembly — See Part Catalog

Description: 1-Way F Coax Type (GY)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available

T15 Navigation Antenna Signal Splitter X1 (IO6)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
-	-	COAX	-	(GPS/Cell) Coaxial Antenna Cell/GPS combined Signal	I	-

T15 Navigation Antenna Signal Splitter X2 (IO6)

Connector Part Information

Harness Type: Body COAX

OEM Connector: COAX

Service Connector: Service by Cable Assembly — See Part Catalog

Description: 1-Way F Coax Type (PK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available

T15 Navigation Antenna Signal Splitter X2 (IO6)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
-	-	COAX	-	(GPS/Cell) Coaxial Antenna Cell/GPS combined Signal	I	-

T15 Navigation Antenna Signal Splitter X3 (IO6)

Connector Part Information

Harness Type: Body COAX

OEM Connector: COAX

Service Connector: Service by Cable Assembly — See Part Catalog

Description: 1-Way F Coax Type (BU)

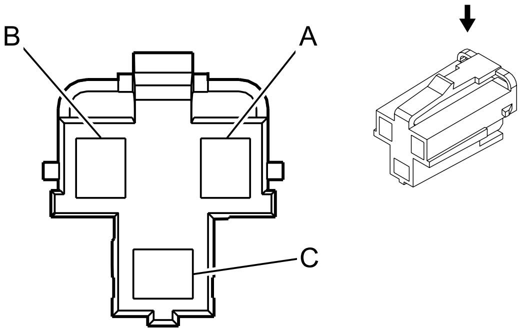
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available

T15 Navigation Antenna Signal Splitter X3 (IO6)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
-	-	COAX	-	(GPS only) Coaxial Antenna GPS Signal	I	-

X80A Accessory Power Receptacle - Center Console 1



Connector Part Information

Harness Type: Instrument Panel

OEM Connector: 12176836

Service Connector: 19257374

Description: 3-Way F 280 Metri Pack Series (GY)

Harness Type: Console

OEM Connector: 12176836

Service Connector: Service by Harness - See Part Catalog

Description: 3-Way F 280 Metri Pack Series (GY)

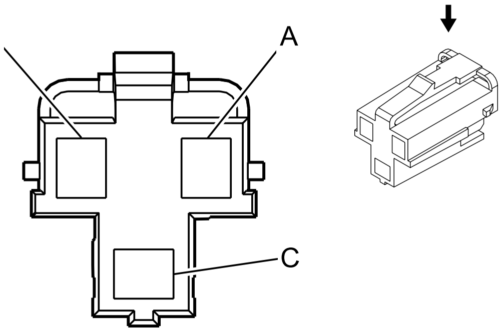
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-64B (L-BU)	Not Available	Not Available	Not Available	Not Available	Not Available

X80A Accessory Power Receptacle - Center Console 1

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	1.5	VT	1701	Retained Accessory Power Fuse Supply Voltage	I	-
B	-	-	-	Not Occupied	-	-
C	1.5	BK	2050	Ground	I	-

X80B Accessory Power Receptacle - Center Console 2



Connector Part Information

Harness Type: Console

OEM Connector: 12176836

Service Connector: Service by Harness - See Part Catalog

Description: 3-Way F 280 Metri Pack Series (GY)

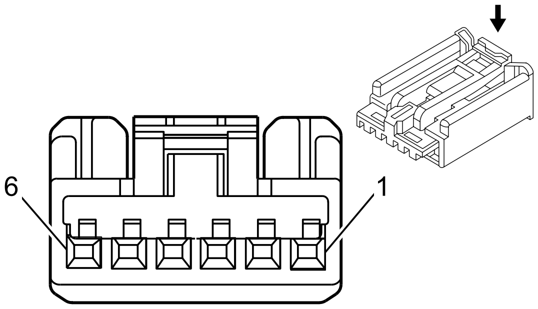
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-64B (L-BU)	Not Available	Not Available	Not Available	Not Available	Not Available

X80B Accessory Power Receptacle - Center Console 2

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	1.5	VT	2101	Retained Accessory Power Fuse Supply Voltage	I	-
B	-	-	-	Not Occupied	-	-
C	1.5	BK	2050	Ground	I	-

X83 Auxiliary Audio Input X1



Connector Part Information

Harness Type: Instrument Panel

OEM Connector: AIT2PB-06-1AK

Service Connector: 19167753

Description: 6-Way F 0.64 Kaizen Series (BK)

Harness Type: Console

OEM Connector: AIT2PB-06-1AK

Service Connector: Service by Harness - See Part Catalog

Description: 6-Way F 0.64 Kaizen Series (BK)

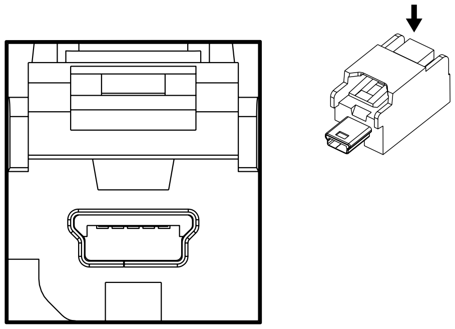
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-64B (L-BU)	Not Available	Not Available	Not Available	Not Available	Not Available

X83 Auxiliary Audio Input X1

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	GY	5839	Left Auxiliary Audio Signal (2)	I	-
2	0.35	L-GN	5841	Right Auxiliary Audio Signal (2)	I	-
3	0.35	VT	5843	Auxiliary Audio Common Signal	I	-
4	0.35	BK/WH	2051	Signal Ground	I	-
5	0.35	L-BU	2060	Auxiliary Detection Signal	I	-
6	0.5	RD/VT	340	Battery Positive Voltage	I	-

X83 Auxiliary Audio Input X2



Connector Part Information

Harness Type: Console

OEM Connector: 13584747

Service Connector: Service by Cable Assembly — See Part Catalog

Description: 5-Way M 2.0 Mini B USB Type (GY)

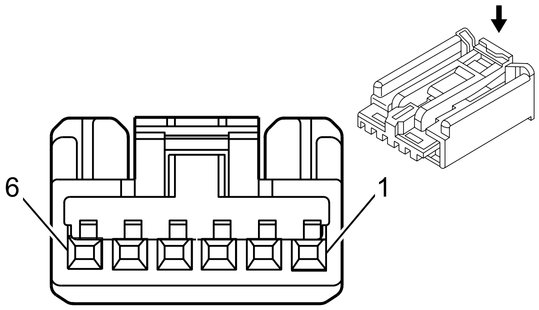
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available

X83 Auxiliary Audio Input X2

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	RD	3149	USB Serial Data Supply Voltage	I	-
2	0.35	WH	3147	USB D (-) Serial Data	I	-
3	0.35	L-GN	3146	USB D (+) Serial Data	I	-
4	0.35	BK	3148	USB Serial Data Low Reference	I	-
5	0.35	BARE	3145	USB Serial Data Drain Wire	I	-

X83R Auxiliary Audio Input - Rear X1 (IO4/IO5/IO6 with MYB)



Connector Part Information

Harness Type: Console

OEM Connector: AIT2PB-06-1AK

Service Connector: Service by Harness - See Part Catalog

Description: 6-Way F 0.64 Kaizen Series (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-64B (L-BU)	Not Available	Not Available	Not Available	Not Available	Not Available

X83R Auxiliary Audio Input - Rear X1 (IO4/IO5/IO6 with MYB)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1-3	-	-	-	Not Occupied	-	-
4	0.35	BK/WH	2051	Signal Ground	I	-
5	-	-	-	Not Occupied	-	-
6	0.5	RD/VT	340	Battery Positive Voltage	I	-

X83R Auxiliary Audio Input - Rear X2 (IO4/IO5/IO6 with MYB)

Connector Part Information

Harness Type: Console USB

OEM Connector: 13580213

Service Connector: Service by Cable Assembly — See Part Catalog

Description: 5-Way F 2.0 Mini B USB Type (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available

X83R Auxiliary Audio Input - Rear X2 (IO4/IO5/IO6 with MYB)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
-	-	USB	-	USB Serial Data	I	-

X83R Auxiliary Audio Input - Rear X3 (IO4/IO5/IO6 with MYB)

Connector Part Information

Harness Type: Console USB

OEM Connector: 13580212

Service Connector: Service by Cable Assembly — See Part Catalog

Description: 5-Way M 2.0 Mini B USB Type (GY)

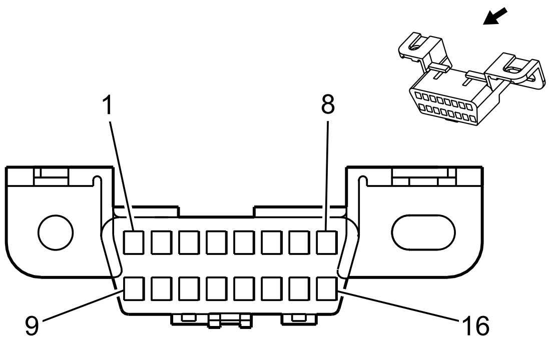
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available

X83R Auxiliary Audio Input - Rear X3 (IO4/IO5/IO6 with MYB)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
-	-	USB	-	USB Serial Data	I	-

X84 Data Link Connector



Connector Part Information

Harness Type: Instrument Panel

OEM Connector: 12110250

Service Connector: 12110250

Description: 16-Way F 150 Metri Pack Series (BK)

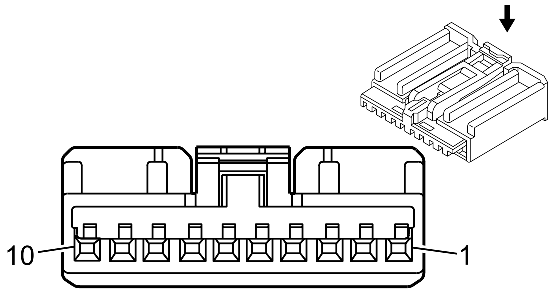
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	13575725	J-35616-14 (GN)	J-38125-12A	Not Available	Not Available	Not Available	Not Available

X84 Data Link Connector

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.5	L-GN	5060	Low Speed GMLAN Serial Data	I	-
2-3	-	-	-	Not Occupied	-	-
4	0.5	BK	2050	Ground	I	-
5	0.75	BK/WH	2151	Signal Ground	I	-
6	0.35	L-BU	2500	High Speed GMLAN Serial Data (+) (1)	I	-
7-11	-	-	-	Not Occupied	-	-
12	0.5	L-BU/YE	6105	High Speed GMLAN Serial Data (+) (2)	I	-
13	0.5	WH	6106	High Speed GMLAN Serial Data (-) (2)	I	-
14	0.35	WH	2501	High Speed GMLAN Serial Data (-) (1)	I	-
15	-	-	-	Not Occupied	-	-
16	0.5	RD/WH	640	Battery Positive Voltage	I	-

X85 Steering Wheel Air Bag Coil X1



Connector Part Information

Harness Type: Instrument Panel

OEM Connector: 15269795

Service Connector: 13576634

Description: 10-Way F 0.64 Kaizen Series (BK)

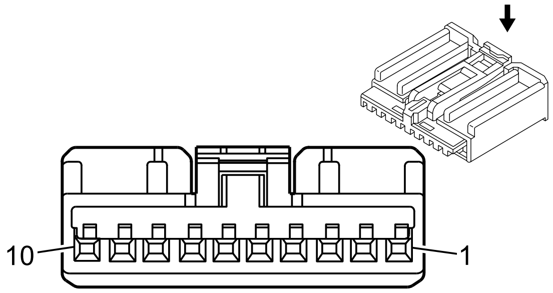
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available

X85 Steering Wheel Air Bag Coil X1

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	RD/YE	3040	Battery Positive Voltage	I	-
2	0.5	L-GN/BK	3894	Local Interconnect Network Bus 12	I	W1Y
3	-	-	-	Not Occupied	-	-
4	0.35	GY/OG	5737	Adaptive Cruise Control Gap Up/Down Switch Signal	I	UEU
5	0.35	BN	6136	Supply Voltage	I	-
6	0.35	WH/RD	1444	12 Volt Reference	I	-
7	0.35	L-GN	6818	Steering Wheel Resistor Ladder Signal #1	I	-W1Y
8	0.35	BN/YE	1884	Cruise Control Set/Coast/Resume/Accelerate Switch	I	-
9	0.5	BK	2050	Ground	I	-
10	0.35	L-GN/WH	3287	Bat	I	-

X85 Steering Wheel Air Bag Coil X2



Connector Part Information

Harness Type: Instrument Panel

OEM Connector: AIT2PB-10-1AK

Service Connector: 13576634

Description: 10-Way F 0.64 Kaizen Series (BK)

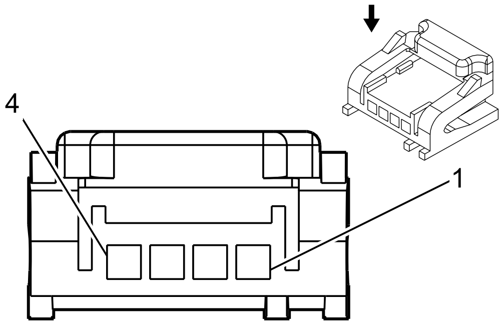
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	13575867	J-35616-64B (L-BU)	J-38125-215A	Not Available	Not Available	Not Available	Not Available

X85 Steering Wheel Air Bag Coil X2

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	L-GN/WH	3287	Horn Switch Signal	I	-
2	0.5	BK	2050	Ground	I	-
3	0.35	BN/L-GN	1884	Cruise Control Set/Coast/Resume/Accelerate Switch Signal	I	-
4	0.35	L-GN	6818	Steering Wheel Resistor Ladder Signal #1	I	-
5	0.35	WH/RD	1444	12 Volt Reference	I	-
6	0.35	BN	6136	Supply Voltage	I	-
7	0.35	GY/L-GN	5737	Adaptive Cruise Control Gap Up/Down Switch Signal	I	-
8	-	-	-	Not Occupied	-	-
9	0.5	L-GN/BK	3894	Linear Interconnect Network Bus 12	I	-
10	0.35	RD/YE	3040	Battery Positive Voltage	I	-

X85 Steering Wheel Air Bag Coil X3



Connector Part Information

Harness Type: Instrument Panel

OEM Connector: 15393421

Service Connector: 13580115

Description: 4-Way F 0.64 Micro Pack Series (YE)

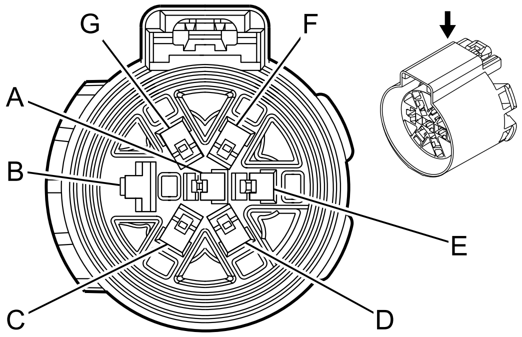
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-64B (L-BU)	Not Available	Not Available	Not Available	Not Available	Not Available

X85 Steering Wheel Air Bag Coil X3

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
1	0.35	WH/OG	3022	Steering Wheel Module Stage 2 Low Control	I	-
2	0.35	OG/L-GN	3023	Steering Wheel Module Stage 2 High Control	I	-
3	0.35	BN/OG	3020	Steering Wheel Module Stage 1 Low Control	I	-
4	0.35	OG/VT	3021	Steering Wheel Module Stage 1 High Control	I	-

X88 Trailer Connector (Z82)



Connector Part Information

Harness Type: Chassis

OEM Connector: 13583072

Service Connector: 13583927

Description: 7-Way F 280 Metri Pack, 630 Series, Sealed (BK)

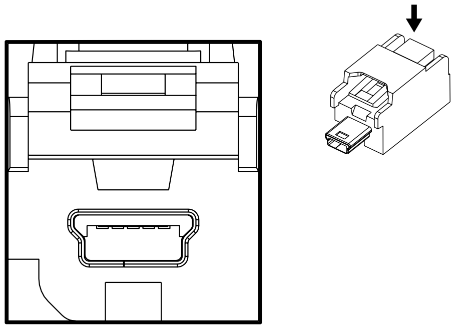
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-64B (L-BU)	Not Available	Not Available	Not Available	Not Available	Not Available

X88 Trailer Connector (Z82)

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	0.75	GY	1624	Trailer Backup Lamp Supply Voltage	I	-
B	6	BK	22	Trailer Ground	I	-
C	2.5	L-BU	47	Trailer Auxiliary Supply Voltage	I	-
D	0.75	L-GN	1619	Right Rear Trailer Stop/Turn Lamp Supply Voltage	I	-
E	4	OG	742	Battery Positive Voltage	I	-
F	1.5	BN	2109	Trailer Park Lamp Supply Voltage	I	-
G	0.75	YE	1618	Left Rear Trailer Stop/Turn Lamp Supply Voltage	I	-

X92 USB Receptacle



Connector Part Information

Harness Type: Console USB

OEM Connector: 13584747

Service Connector: Service by Cable Assembly — See Part Catalog

Description: 5-Way M 2.0 Mini B USB Type (GY)

Terminal Part Information

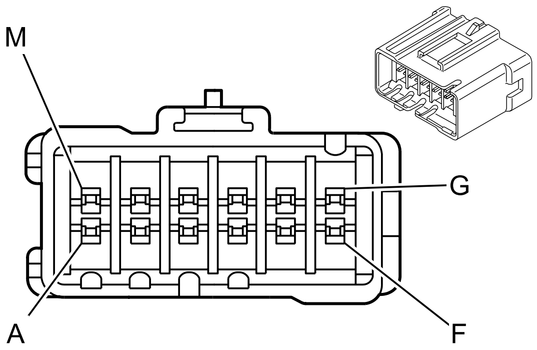
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available

X92 USB Receptacle

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
-	-	USB	-	USB Serial Data	I	-

Splice Pack Connector End Views

JX200 Instrument Panel Harness



Connector Part Information

Harness Type: Instrument Panel

OEM Connector: 15305291

Service Connector: 15305291

Description: 12-Way F 280 Metri Pack Series (BK)

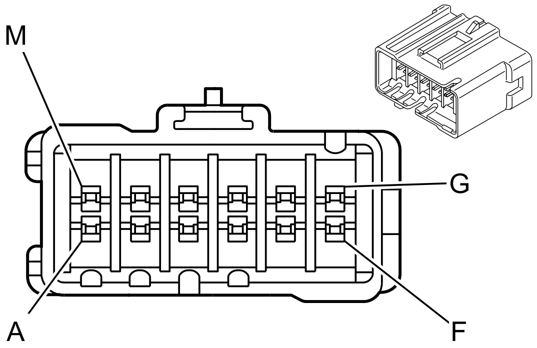
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	13575719	J-35616-4A (PU)	J-38125-553	12110844	4	E	A

JX200 Instrument Panel Harness

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	0.5	L-GN	5060	Low Speed GMLAN Serial Data	I	-
B	0.75	L-GN	5060	Low Speed GMLAN Serial Data	I	UQA
C	-	-	-	Not Occupied	-	-
D	0.5	L-GN	5060	Low Speed GMLAN Serial Data	I	-
E	0.35	L-GN	5060	Low Speed GMLAN Serial Data	I	-
F	-	-	-	Not Occupied	-	-
G	0.5	L-GN	5060	Low Speed GMLAN Serial Data	I	-
H	-	-	-	Not Occupied	-	-
J	0.5	L-GN	5060	Low Speed GMLAN Serial Data	I	-
K	0.35	L-GN	5060	Low Speed GMLAN Serial Data	I	-
L	0.5	L-GN	5060	Low Speed GMLAN Serial Data	I	-
M	0.5	L-GN	5060	Low Speed GMLAN Serial Data	I	-

JX201 Instrument Panel Harness



Connector Part Information

Harness Type: Body

OEM Connector: 15305291

Service Connector: 15305291

Description: 12-Way F 280 Metri Pack Series (BK)

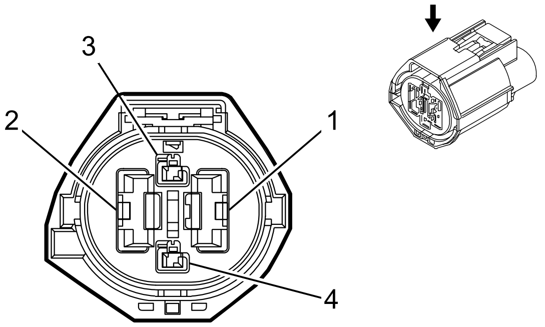
Terminal Part Information

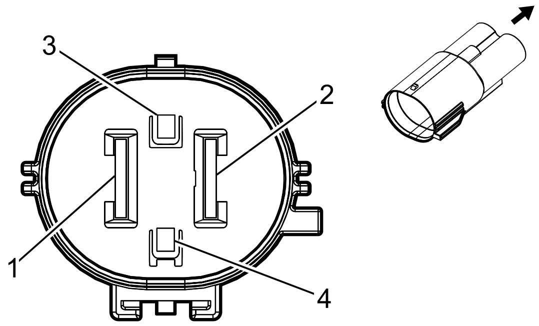
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	13575719	J-35616-4A (PU)	J-38125-553	12110844	4	E	A

JX201 Instrument Panel Harness

Pin	Size	Color	Circuit	Function	Terminal Type ID	Option
A	0.5	L-GN	5060	Low Speed GMLAN Serial Data	I	-
B	-	-	-	Not Occupied	-	-
C	0.5	L-GN	5060	Low Speed GMLAN Serial Data	I	-
D-E	-	-	-	Not Occupied	-	-
F	0.5	L-GN	5060	Low Speed GMLAN Serial Data	I	-
G-H	-	-	-	Not Occupied	-	-
J	0.5	L-GN	5060	Low Speed GMLAN Serial Data	I	UFL/UEU
K-M	-	-	-	Not Occupied	-	-

X100 Electric Power Steering Harness to Battery Negative Harness





Connector Part Information

Harness Type: Battery Negative

OEM Connector: 19181807

Service Connector: Service by Harness - See Part Catalog

Description: 4-Way F 1.5, 9.5 Series, Sealed (BN)

Connector Part Information

Harness Type: Electric Power Steering

OEM Connector: 7286-1399-80

Service Connector: Service by Harness - See Part Catalog

Description: 4-Way M 1.5, 9.5 Series, Sealed (BN)

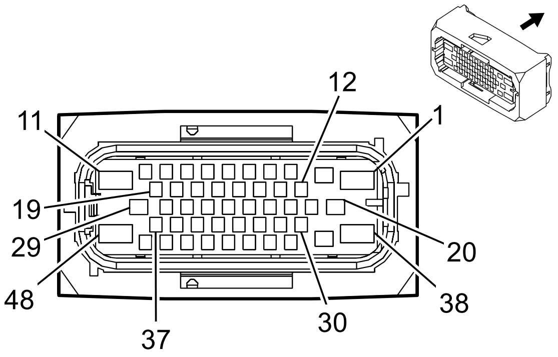
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available
II	Not Available	J-35616-64B (L-BU)	Not Available	Not Available	Not Available	Not Available	Not Available

X100 Electric Power Steering Harness to Battery Negative Harness

Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
1	10	RD/VT	842	I	-	Battery Positive Voltage	1	10	RD/VT	842	II	-
2	10	BK	1050	I	-	Ground	2	10	BK	1050	II	-
3-4	-	-	-	-	-	Not Occupied	3-4	-	-	-	-	-

X101 Engine Harness to Body Harness



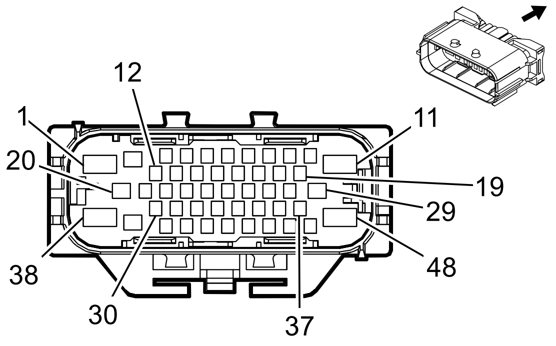
Connector Part Information

Harness Type: Engine

OEM Connector: 15509585

Service Connector: 19329744

Description: 48-Way F 1.5 MCP, 2.8 JPT, 6.3 MCP Series, Sealed (BK)



Connector Part Information

Harness Type: Body

OEM Connector: 15513438

Service Connector: 19329745

Description: 48-Way M 1.6, 2.8, 5.8 Series, Sealed (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	19119560	J-35616-40 (BU)	J-38125-556	Not Available	Not Available	Not Available	Not Available
II	19301776	J-35616-14 (GN)	J-38125-215A	Not Available	Not Available	Not Available	Not Available
III	19328630	J-35616-40 (BU)	J-38125-556	Not Available	Not Available	Not Available	Not Available
IV	13580821	J-35616-4A (PU)	J-38125-36	Not Available	Not Available	Not Available	Not Available
V	13580830	J-35616-35 (VT)	J-38125-36	4-964286-1	16	E	1
VI	19119379	J-35616-64B (L-BU)	J-38125-12A	Not Available	Not Available	Not Available	Not Available
VII	19119381	J-35616-64B (L-BU)	J-38125-12A	Not Available	Not Available	Not Available	Not Available
VIII	19119377	J-35616-64B (L-BU)	J-38125-12A	Not Available	Not Available	Not Available	Not Available
IX	13580829	J-35616-4A (PU)	J-38125-36	Not Available	Not Available	Not Available	Not Available
X	13580830	J-35616-35 (VT)	J-38125-36	Not Available	Not Available	Not Available	Not Available
XI	19119926	J-35616-42 (RD)	J-38125-36	Not Available	Not Available	Not Available	Not Available
XII	13327190	J-35616-3 (GY)	J-38125-560	Not Available	Not Available	Not Available	Not Available
XIII	19329750	J-35616-42 (RD)	J-38125-36	Not Available	Not Available	Not Available	Not Available
XIV	13578881	J-35616-5 (PU)	J-38125-36	Not Available	Not Available	Not Available	Not Available
XV	13581368	J-35616-5 (PU)	J-38125-36	Not Available	Not Available	Not Available	Not Available

X101 Engine Harness to Body Harness

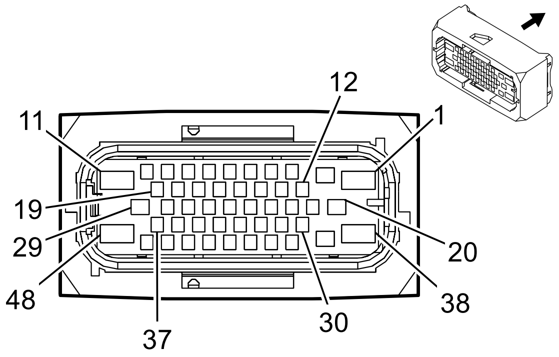
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
1	2.5	YE/VT	1553	I	NQ6/NQ7	Transfer Case Motor Counter Clockwise	1	2.5	YE/VT	1553	XI	NQ6/NQ7

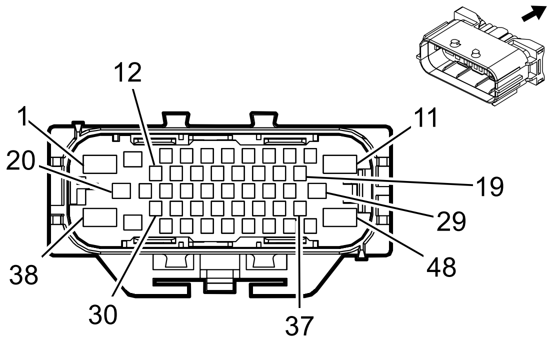
						Counter Clockwise Control						
2	2.5	BN/VT	1470	IX	-	Brake Booster Pump Motor Supply Voltage	2	2.5	BN/VT	1470	XIV	-
3	0.75	VT/GY	139	II	-	Run/Crank Ignition 1 Voltage	3	0.75	VT/GY	139	XII	-
4	0.5	WH/L-GN	7475	II	NQ6/NQ7	Incremental Encoder Sensor (8V) Supply	4	0.5	WH/L-GN	7475	XII	NQ6/NQ7
5	0.5	WH/L-BU	6311	II	-	Cruise/ETC/TCC Brake Signal	5	0.5	WH/L-BU	6311	XII	-
6	0.5	BK/VT	1272	II	-	Accelerator Pedal Position Low Reference (2)	6	0.5	BK/VT	1272	XII	-
7	0.5	BN/WH	419	II	-	Check Engine Indicator Control	7	0.5	BN/WH	419	XII	-
8	0.5	BN/RD	1274	II	-	Accelerator Pedal Position 5 Volt Reference (2)	8	0.5	BN/RD	1274	XII	-
9	0.5	YE	7474	II	NQ6/NQ7	Incremental Encoder Direction Signal	9	0.5	YE	7474	XII	NQ6/NQ7
10	0.75	L-BU/BN	7573	II	-	Electric Variable Displacement Supply	10	0.5	L-BU/BN	7573	XII	-
11	0.75	BK	1450	III	-	Ground	11	0.75	BK	1450	XIII	-
12	0.5	BK	1782	II	NQ6/NQ7	Drain Wire	12	0.5	BK	1782	XII	NQ6/NQ7
13	0.5	GY	5660	II	-	Fuel Pump Controller Data Out Signal	13	0.5	GY	5660	XII	-
14	0.5	WH/BK	2366	II	-	Cooling Fan Control Relay Speed Signal	14	0.5	WH/BK	2366	XII	-
15	0.5	L-BU/WH	890	II	-	Fuel Tank Pressure Sensor Signal	15	0.5	L-BU/WH	890	XII	-
16	0.5	YE/RD	2709	II	-	Fuel Tank Pressure Sensor 5 Volt Reference	16	0.5	YE/RD	2709	XII	-
17	0.5	BK/L-GN	6281	II	-	Fuel Level Sensor Low Reference	17	0.5	BK/L-GN	6281	XII	-
18	0.5	L-BU/VT	1589	II	-	Primary Fuel Level Sensor Signal	18	0.5	L-BU/VT	1589	XII	-
19	0.75	L-BU/YE	7574	II	-	Electric Variable Displacement Control	19	0.5	L-BU/YE	7574	XII	-
20	2.5	YE/BN	1569	IV	NQ6	Transfer Case Lock Solenoid Control	20	2.5	YE/BN	1569	XIV	NQ6
21	0.5	BK/YE	7447	II	-	Fuel Line Pressure Sensor Low Reference	21	0.5	BK/YE	7447	XII	-
22	0.5	L-BU/GY	7473	II	NQ6/NQ7	Incremental Encoder	22	0.5	L-BU/GY	7473	XII	NQ6/NQ7

22	0.5	L-BU/GY	7473	II	NQ6/NQ7	Incremental Encoder Impulse Signal	22	0.5	L-BU/GY	7473	XII	NQ6/NQ7
23	0.5	L-GN/WH	1162	II	-	Accelerator Pedal Position Signal (2)	23	0.5	L-GN/WH	1162	XII	-
24	0.5	BK/L-BU	1271	II	-	Accelerator Pedal Position Low Reference (1)	24	0.5	BK/L-BU	1271	XII	-
25	0.5	WH/RD	1164	II	-	Accelerator Pedal Position 5 Volt Reference (1)	25	0.5	WH/RD	1164	XII	-
26	0.5	WH	1310	II	-	EVAP Canister Vent Solenoid Control	26	0.5	WH	1310	XII	-
27	0.5	WH/RD	7477	II	-	Rotary Position Sensor Supply 5V	27	0.5	WH/RD	7477	XII	-
28	0.5	WH/L-GN	7479	II	-	Rotary Position Sensor Signal	28	0.5	WH/L-GN	7479	XII	-
29	0.5	YE/BK	7478	V	-	Rotary Position Sensor Return	29	0.5	YE/BK	7478	XV	-
30	0.5	BK/L-BU	61	II	-	Outside Ambient Temperature Sensor Low Reference	30	0.5	BK/L-BU	61	XII	-
31	0.5	L-BU/GY	636	II	-	Outside Ambient Air Temperature Sensor Signal	31	0.5	L-BU/GY	636	XII	-
32	0.5	YE/WH	1161	II	-	Accelerator Pedal Position Signal (1)	32	0.5	YE/WH	1161	XII	-
33	0.5 0.5	BK/YE BK/GY	5382 6110	II	LCV with MYB LCV with N8D	Brake Position Sensor Low Reference Clutch Apply Sensor Low Reference	33	0.5 0.5	BK/YE BK/GY	5382 6110	XII	LCV with MYB LCV with N8D
34	0.5 0.5	WH/L-GN YE	5380 6111	II	LCV with MYB LCV with N8D	Brake Position Sensor Signal Clutch Apply Sensor Signal	34	0.5 0.5	WH/L-GN YE	5380 6111	XII	LCV with MYB LCV with N8D
35	0.5 0.5	WH/RD GY/RD	5381 6109	II	LCV with MYB LCV with N8D	Brake Position Sensor 5 Volt Reference Clutch Apply Sensor Voltage Reference	35	0.5 0.5	WH/RD GY/RD	5381 6109	XII	LCV with MYB LCV with N8D
36	0.5	L-BU/YE	7493	II	LCV	High Speed GMLAN Serial Data (+)(3)	36	0.5	L-BU/BK	7493	XII	LCV
37	0.5	WH	7494	II	LCV	High Speed GMLAN Serial Data (-)(3)	37	0.5	WH	7494	XII	LCV
38	2.5	YE/GY	1552	I	NQ6/NQ7	Transfer Case Motor Clockwise Control	38	2.5	YE/GY	1552	XI	NQ6/NQ7
39	2.5	RD/GY	1342	IV	NQ6	Battery Positive Voltage	39	2.5	RD/GY	1342	XIV	NQ6
40	0.5	BK/L-BU	6813	II	LCV	Coolant Temperature	40	0.5	BK/L-BU	6813	XII	LCV

						Sensor #2 Low Reference						
41	0.5	YE/BK	3000	II	LCV	Coolant Temperature Sensor #2 Signal	41	0.5	YE/BK	3000	XII	LCV
42	0.5	VT/YE	5985	II	-	Accessory Wakeup Serial Data	42	0.5	VT/YE	5985	XII	-
43	0.5	VT	7476	II	NQ6/NQ7	Incremental Encoder Sensor Return	43	0.5	VT	7476	XII	NQ6/NQ7
44	0.5	L-BU/WH	7446	II	-	Fuel Line Pressure Sensor Signal	44	0.5	L-BU/WH	7446	XII	-
45	0.5	GY	3890	II	LCV	Aero Shutter Control 2	45	0.5	GY	3890	XII	LCV
46	0.5	L-BU	2500	II	-	High Speed GMLAN Serial Data (+) (1)	46	0.5	L-BU	2500	XII	-
47	0.5	WH	2501	II	-	High Speed GMLAN Serial Data (-) (1)	47	0.5	WH	2501	XII	-
48	0.5	BN/RD	7445	III	LCV	Fuel Line Pressure Sensor 5V Reference	48	0.5	BN/RD	7445	XIII	LCV

X102 Forward Lamp Harness to Body Harness





Connector Part Information

Harness Type: Forward Lamp

OEM Connector: 15509588

Service Connector: 19329766

Description: 48-Way F 1.5 MCP, 2.8 JPT, 6.3 MCP Series, Sealed (YE)

Connector Part Information

Harness Type: Body

OEM Connector: 15513436

Service Connector: 19301796

Description: 48-Way M 1.6, 2.8, 5.8 Series, Sealed (YE)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	19119560	J-35616-40 (BU)	J-38125-556	Not Available	Not Available	Not Available	Not Available
II	19301776	J-35616-14 (GN)	J-38125-215A	Not Available	Not Available	Not Available	Not Available
III	19329757	J-35616-64B (L-BU)	J-38125-215A	Not Available	Not Available	Not Available	Not Available
IV	13584463	J-35616-35 (VT)	J-38125-36	4-964286-1	16	E	1
V	19119926	J-35616-42 (RD)	J-38125-36	Not Available	Not Available	Not Available	Not Available
VI	13582344	J-35616-3 (GY)	J-38125-560	Not Available	Not Available	Not Available	Not Available
VII	13579985	J-35616-3 (GY)	J-38125-560	Not Available	Not Available	Not Available	Not Available
VIII	13327190	J-35616-3 (GY)	J-38125-560	Not Available	Not Available	Not Available	Not Available
IX	13327188	J-35616-3 (GY)	J-38125-560	Not Available	Not Available	Not Available	Not Available
X	13581368	J-35616-5 (PU)	J-38125-36	Not Available	Not Available	Not Available	Not Available

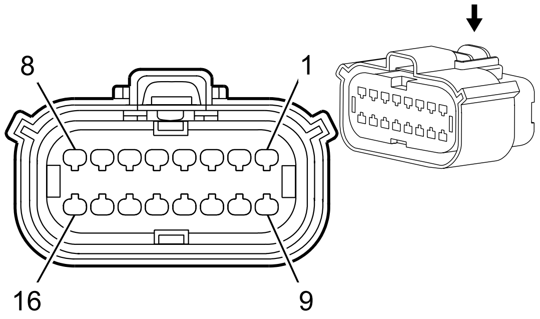
X102 Forward Lamp Harness to Body Harness

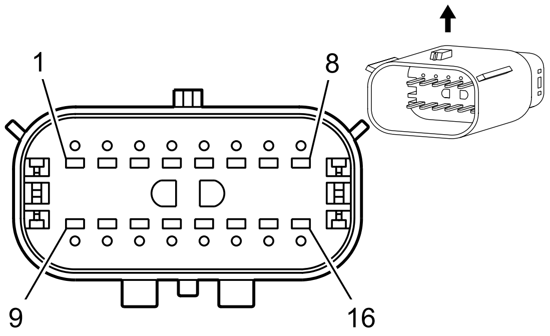
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
1	2.5	BN/VT	1470	I	-	Brake Booster Pump Motor Supply Voltage	1	2.5	BN/VT	1470	V	-
2	-	-	-	-	-	Not Occupied	2	-	-	-	-	-
3	0.75	WH/VT	1430	II	-	Exterior Courtesy Lamp Supply Voltage	3	0.75	WH/VT	1430	VIII	-
4-5	-	-	-	-	-	Not Occupied	4-5	-	-	-	-	-
6	0.75	VT/GY	709	II	-	Left Park Lamp Supply Voltage	6	0.5	VT/GY	709	VIII	-

						Voltage						
7	-	-	-	-	-	Not Occupied	7	-	-	-	-	-
8	0.75	GY/BN	309	II	-	Right Park Lamp Supply Voltage	8	0.5	GY/BN	309	VIII	-
9	-	-	-	-	-	Not Occupied	9	-	-	-	-	-
10	1.5	WH	92	II	-	Windshield Wiper Motor High Speed Control	10	1.5	WH	92	VI	-
11	1.5	YE/BN	95	I	-	Windshield Wiper Motor Low Speed Control	11	1.5	YE/BN	95	V	-
12	-	-	-	-	-	Not Occupied	12	-	-	-	-	-
13	0.5	OG/YE	354	III	-	Left Front Discriminating Sensor Signal	13	0.5	OG/YE	354	VII	-
14	0.5	BK/OG	5045	III	-	Left Front Discriminating Sensor Low Reference	14	0.5	BK/OG	5045	VII	-
15	0.5	BN/L-GN	109	II	-	Hood Ajar Switch Signal	15	0.5	BN/L-GN	109	VIII	-
16	-	-	-	-	-	Not Occupied	16	-	-	-	-	-
17	0.5	VT/GY	1054	II	-	Stop Lamp Supply Voltage	17	0.35	VT/GY	1054	IX	-
18	-	-	-	-	-	Not Occupied	18	-	-	-	-	-
19	0.75	YE	312	II	-	Right Headlamp Low Beam Supply Voltage	19	1.5	YE	312	VI	-
20	-	-	-	-	-	Not Occupied	20	-	-	-	-	-
21	0.5	OG/L-GN	1409	III	-	Right Front Discriminating Sensor Signal	21	0.5	OG/L-GN	1409	VII	-
22	0.5	BK/OG	5600	III	-	Right Front Discriminating Sensor Low Reference	22	0.5	BK/OG	5600	VII	-
23	-	-	-	-	-	Not Occupied	23	-	-	-	-	-
24	0.5	WH/BK	2366	II	-	Cooling Fan Control Relay Speed Signal	24	0.5	WH/BK	2366	VIII	-
25	-	-	-	-	-	Not Occupied	25	-	-	-	-	-
26	0.5	L-BU/GY	636	II	-	Outside Ambient Air Temperature Sensor Signal	26	0.5	L-BU/GY	636	VIII	-
27	0.5	BK/L-BU	61	II	-	Outside Ambient Temperature Sensor Low Reference	27	0.5	BK/L-BU	61	VIII	-
28	-	-	-	-	-	Not Occupied	28	-	-	-	-	-
29	0.75	L-GN/VT	1315	IV	-	Right Front Turn Signal	29	0.75	L-GN/VT	1315	X	-

29	0.75	L-GN/VT	1315	IV	-	Right Front Turn Signal Lamp Supply Voltage	29	0.75	L-GN/VT	1315	X	-
30	-	-	-	-	-	Not Occupied	30	-	-	-	-	-
31	0.5	BN	6305	II	-	Brake Vacuum Switch Signal	31	0.5	BN	6305	VIII	-
32-33	-	-	-	-	-	Not Occupied	32-33	-	-	-	-	-
34	0.5	BN	3891	II	LFX	Aero Shutter Control	34	0.5	BN	3891	VIII	LFX
35	0.5	GY	3890	II	LCV	Aero Shutter Control 2	35	0.5	GY	3890	VIII	LCV
36	-	-	-	-	-	Not Occupied	36	-	-	-	-	-
37	0.75	YE	712	II	-	Left Headlamp Low Beam Supply Voltage	37	1.5	YE	712	VI	-
38	1.5	BK	3150	I	-	Ground	38	1.5	BK	3150	V	-
39-43	-	-	-	-	-	Not Occupied	39-43	-	-	-	-	-
44	0.5	YE/BK	3000	II	-	Coolant Temperature Sensor #2 Signal	44	0.5	YE/BK	3000	VIII	-
45	0.5	BK/L-BU	6813	II	-	Coolant Temperature Sensor #2 Low Reference	45	0.5	BK/L-BU	6813	VIII	-
46	-	-	-	-	-	Not Occupied	46	-	-	-	-	-
47	0.75	L-BU/WH	1314	II	-	Left Front Turn Signal Lamp Supply Voltage	47	0.75	L-BU/WH	1314	VIII	-
48	1.5	BN	2109	I	-	Trailer Park Lamp Supply Voltage	48	1.5	BN	2109	V	-

X103 Chassis Harness to Electric Power Steering Harness





Connector Part Information

Harness Type: Chassis

OEM Connector: 13503529

Service Connector: 13584788

Description: 16-Way F 1.5 Series, Sealed (BK)

Connector Part Information

Harness Type: Electric Power Steering

OEM Connector: 13503544

Service Connector: Service by Harness - See Part Catalog

Description: 16-Way M 150 MX Series, Sealed (BK)

Terminal Part Information

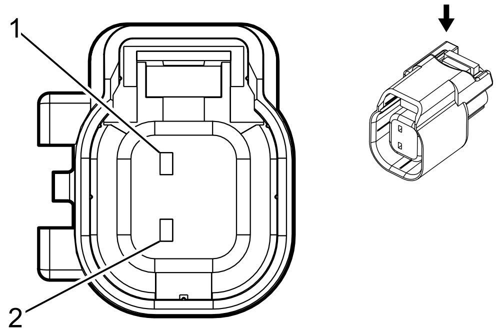
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	19300635	J-35616-2A (GY)	J-38125-217	Not Available	Not Available	Not Available	Not Available
II	Not Available	J-35616-64B (L-BU)	Not Available	Not Available	Not Available	Not Available	Not Available

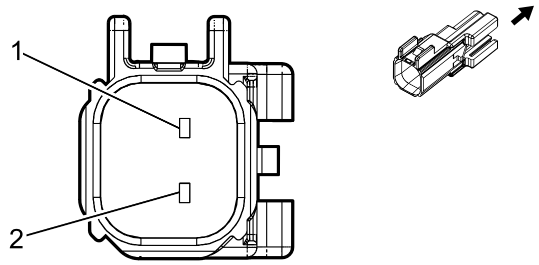
X103 Chassis Harness to Electric Power Steering Harness

Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
1	0.75	VT/BK	2139	I	-	Run/Crank Ignition 1 Voltage	1	0.75	VT/BK	2139	II	-
2	0.5	WH	2501	I	-	High Speed GMLAN Serial Data (-) (1)	2	0.5	WH	2501	II	-
3	0.5	L-BU	2500	I	-	High Speed GMLAN Serial Data (+) (1)	3	0.5	L-BU	2500	II	-
4	0.5	WH	6106	I	-	High Speed GMLAN Serial Data (-) (2)	4	0.5	WH	6106	II	-
5	0.5	L-BU/YE	6105	I	-	High Speed GMLAN Serial Data (+) (2)	5	0.5	L-BU/YE	6105	II	-
6	0.5	GY/BK	1570	I	-	Front Axle Actuator Control	6	0.5	GY/BK	1570	II	-
7	0.5	RD/BN	5940	I	-	Battery Positive Voltage	7	0.5	RD/BN	5940	II	-
8	0.5	WH/L-BU	5986	I	-	Serial Data Communication Enable	8	0.5	WH/L-BU	5986	II	-
9	0.5	WH	2501	I	-	High Speed GMLAN Serial Data (-) (1)	9	0.5	WH	2501	II	-
10	0.5	L-BU	2500	I	-	High Speed GMLAN Serial Data (+) (1)	10	0.5	L-BU	2500	II	-

						Serial Data (+) (1)						
11	0.5	WH	6106	I	-	High Speed GMLAN Serial Data (-) (2)	11	0.5	WH	6106	II	-
12	0.5	L-BU/YE	6105	I	-	High Speed GMLAN Serial Data (+) (2)	12	0.5	L-BU/YE	6105	II	-
13	0.75	BK	1450	I	-	Ground	13	0.75	BK	1450	II	-
14	0.5	YE/WH	1695	I	-	Four Wheel Drive Wheel Lock Indicator	14	0.5	YE/WH	1695	II	-
15-16	-	-	-	-	-	Not Occupied	15-16	-	-	-	-	-

X104 Forward Lamp Harness to Forward Lamp Extension Harness (LCV)





Connector Part Information

Harness Type: Forward Lamp

OEM Connector: 34062-0038

Service Connector: 19329741

Description: 2-Way F 1.5 Series, Sealed (BK)

Connector Part Information

Harness Type: Forward Lamp Extension

OEM Connector: 34675-0001

Service Connector: Service by Harness - See Part Catalog

Description: 2-Way M 1.5 Series, Sealed (BK)

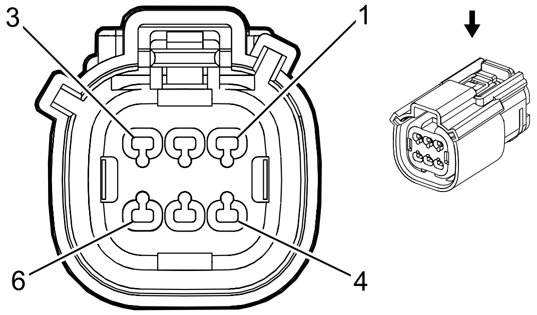
Terminal Part Information

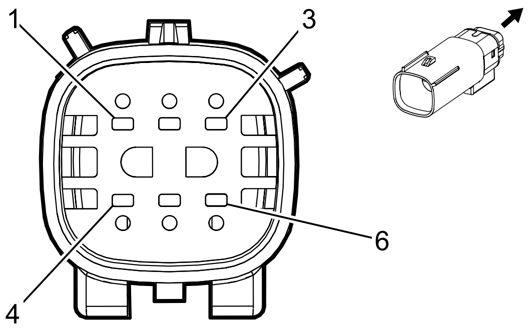
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-2A (GY)	Not Available	Not Available	Not Available	Not Available	Not Available
II	Not Available	J-35616-3 (GY)	Not Available	Not Available	Not Available	Not Available	Not Available

X104 Forward Lamp Harness to Forward Lamp Extension Harness (LCV)

Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
1	0.5	YE/BK	3000	I	-	Coolant Temperature Sensor #2 Signal	1	0.5	YE/BK	3000	II	-
2	0.5	BK/L-BU	6813	I	-	Coolant Temperature Sensor #2 Low Reference	2	0.5	BK/L-BU	6813	II	-

X105 Forward Lamp Harness to Jumper Harness (LCV)





Connector Part Information

Harness Type: Forward Lamp

OEM Connector: 33472-0607

Service Connector: 19301527

Description: 6-Way F 150 MX Series, Sealed (GY)

Connector Part Information

Harness Type: Jumper

OEM Connector: 13503536

Service Connector: Service by Harness – See Part Catalog

Description: 6-Way M 150 MX Series, Sealed (GY)

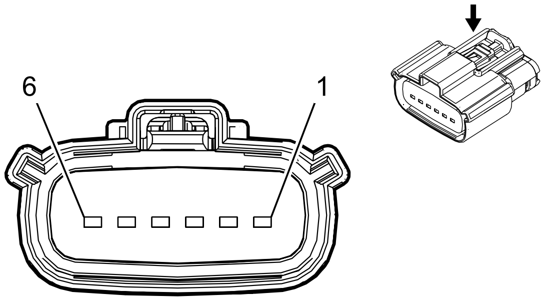
Terminal Part Information

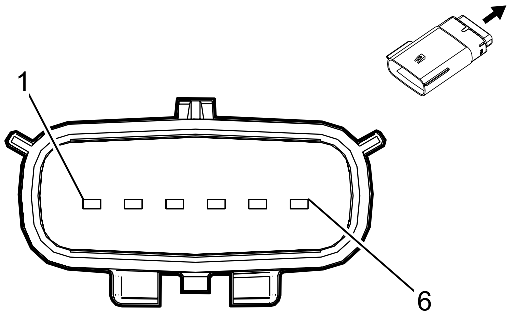
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-2A (GY)	Not Available	Not Available	Not Available	Not Available	Not Available
II	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available

X105 Forward Lamp Harness to Jumper Harness (LCV)

Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
1	0.75	BK	1250	I	-	Ground	1	0.75	BK	1250	II	-
2	0.5	WH/VT	4333	I	-	Aero Shutter Actuator Supply Voltage	2	0.5	WH/VT	4333	II	-
3	0.5	GY	3890	I	-	Aero Shutter Control 2	3	0.5	BN	3891	II	-
4	-	-	-	-	-	Not Occupied	4	-	-	-	-	-
5	0.5	L-BU/GY	636	I	-	Outside Ambient Air Temperature Sensor Signal	5	0.5	L-BU/GY	636	II	-
6	0.5	BK/L-BU	61	I	-	Outside Ambient Temperature Sensor Low Reference	6	0.5	BK/L-BU	61	II	-

X105 Forward Lamp Harness to Jumper Harness (LFX)





Connector Part Information

Harness Type: Forward Lamp

OEM Connector: 33471-0606

Service Connector: 19303226

Description: 6-Way F 1.5 Series, Sealed (BK)

Connector Part Information

Harness Type: Jumper

OEM Connector: 13504374

Service Connector: Service by Harness – See Part Catalog

Description: 6-Way M 1.5 MX Series, Sealed (BK)

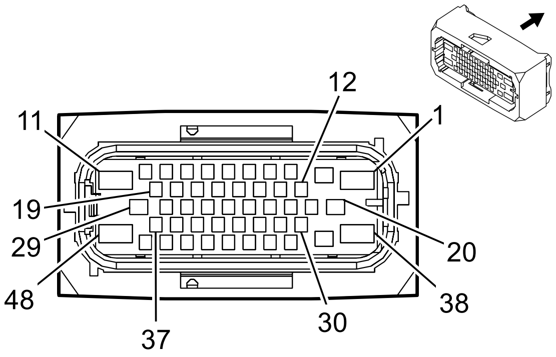
Terminal Part Information

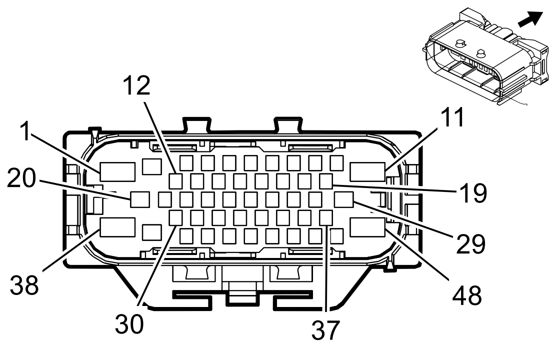
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-2A (GY)	Not Available	Not Available	Not Available	Not Available	Not Available
II	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available

X105 Forward Lamp Harness to Jumper Harness (LFX)

Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
1	0.75	BK	1250	I	-	Ground	1	0.75	BK	1250	II	-
2	0.5	WH/VT	4333	I	-	Aero Shutter Actuator Supply Voltage	2	0.5	WH/VT	4333	II	-
3	0.5	BN	3891	I	-	Aero Shutter Control	3	0.5	BN	3891	II	-
4	-	-	-	-	-	Not Occupied	4	-	-	-	-	-
5	0.5	L-BU/GY	636	I	-	Outside Ambient Air Temperature Sensor Signal	5	0.5	L-BU/GY	636	II	-
6	0.5	BK/L-BU	61	I	-	Outside Ambient Temperature Sensor Low Reference	6	0.5	BK/L-BU	61	II	-

X106 Body Harness to Chassis Harness





Connector Part Information

Harness Type: Body

OEM Connector: 15509587

Service Connector: 19119963

Description: 48-Way F 1.5 MCP, 2.8 JPT, 6.3 MCP Series, Sealed (GY)

Connector Part Information

Harness Type: Chassis

OEM Connector: 15513437

Service Connector: 13586850

Description: 48-Way M 1.6, 2.8, 5.8 Series, Sealed (GY)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	19119560	J-35616-40 (BU)	J-38125-556	Not Available	Not Available	Not Available	Not Available
II	19301776	J-35616-14 (GN)	J-38125-215A	Not Available	Not Available	Not Available	Not Available
III	19328630	J-35616-40 (BU)	J-38125-556	Not Available	Not Available	Not Available	Not Available
IV	13580821	J-35616-4A (PU)	J-38125-36	Not Available	Not Available	Not Available	Not Available
V	19329756	J-35616-64B (LT BU)	J-38125-12A	Not Available	Not Available	Not Available	Not Available
VI	13575380	J-35616-3 (GY)	J-38125-560	Not Available	Not Available	Not Available	Not Available
VII	13579770	J-35616-64B (L-BU)	J-38125-12A	Not Available	Not Available	Not Available	Not Available
VIII	13575376	J-35616-43 (RD)	J-38125-557	Not Available	Not Available	Not Available	Not Available
IX	19119926	J-35616-42 (RD)	J-38125-36	Not Available	Not Available	Not Available	Not Available

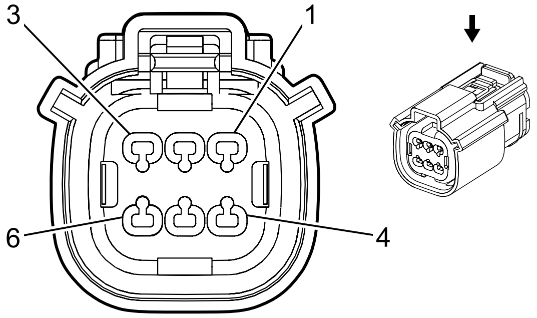
X106 Body Harness to Chassis Harness

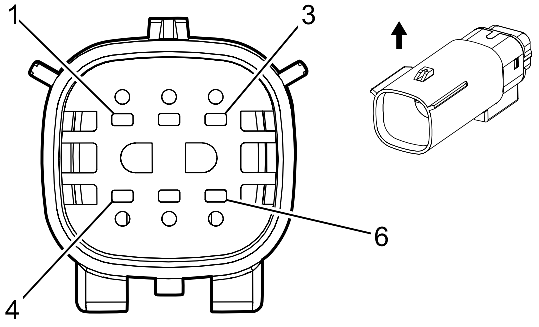
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
1	4	RD/GY	1042	I	-	Battery Positive Voltage	1	4	RD/GY	1042	V	-
2	2.5	RD/YE	442	IV	-	Battery Positive Voltage	2	2.5	RD/YE	442	VII	-
3	0.75	GY	1624	II	-	Trailer Backup Lamp Supply Voltage	3	0.75	GY	1624	VI	-
4	0.75	L-GN	1619	II	-	Right Rear Trailer Stop/Turn Lamp Supply Voltage	4	0.75	L-GN	1619	VI	-
5	0.75	YE	1618	II	-	Left Rear Trailer Stop/Turn Lamp Supply Voltage	5	0.75	YE	1618	VI	-

						Voltage						
6	0.5	BN/GY	2609	II	-	Right Rear Park Lamp Supply Voltage	6	0.75	BN/GY	2609	VI	-
7	0.5	L-GN/WH	24	II	-	Backup Lamp Supply Voltage	7	0.5	L-GN/WH	24	VI	-
8	0.5	L-GN/YE	6846	II	-	Rear License Lamp Supply Voltage	8	0.5	L-GN/YE	6846	VI	-
9	0.5	VT/YE	5985	II	-	Accessory Wakeup Serial Data	9	0.5	VT/YE	5985	VI	-
10	0.75	VT/BK	2139	II	-	Run/Crank Ignition 1 Voltage	10	0.75	VT/BK	2139	VI	-
11	0.75	BK	1450	III	-	Ground	11	0.75	BK	1450	VI	-
12	1.5	GY/YE	7542	II	-	Left Rear Stop Lamp Supply Voltage	12	0.75	GY/YE	7542	VI	-
13	0.5	VT/L-GN	1739	II	-	Run/Crank Ignition 1 Voltage	13	0.5	VT/L-GN	1739	VI	-
14	0.5	BN/L-BU	2509	II	-	Left Rear Park Lamp Supply Voltage	14	0.75	BN/L-BU	2509	VI	-
15	1.5	WH/YE	7541	II	-	Right Rear Stop Lamp Supply Voltage	15	0.75	WH/YE	7541	VI	-
16	0.75	VT/GY	139	II	-	Run/Crank Ignition 1 Voltage	16	0.75	VT/GY	139	VI	-
17	0.5	BN	3891	II	-	Aero Shutter Control	17	0.5	BN	3891	VI	-
18	-	-	-	-	-	Not Occupied	18	-	-	-	-	-
19	0.5	WH	2501	II	-	High Speed GMLAN Serial Data (-) (1)	19	0.5	WH	2501	VI	-
20	2.5	RD/VT	1940	IV	-	Battery Positive Voltage	20	2.5	RD/VT	1940	VII	-
21	0.5	RD/BN	5940	II	-	Battery Positive Voltage	21	0.5	RD/BN	5940	VI	-
22	0.5	BN	6305	II	-	Brake Vacuum Switch Signal	22	0.5	BN	6305	VI	-
23	0.5	L-BU/WH	890	II	-	Fuel Tank Pressure Sensor Signal	23	0.5	L-BU/WH	890	VI	-
24	0.5	YE/RD	2709	II	-	Fuel Tank Pressure Sensor 5 Volt Reference	24	0.5	YE/RD	2709	VI	-
25	0.5	BK/L-GN	6281	II	-	Fuel Level Sensor Low Reference	25	0.5	BK/L-GN	6281	VI	-
26	0.5	WH/L-BU	5986	II	-	Serial Data Communication Enable	26	0.5	WH/L-BU	5986	VI	-
27	0.5	GY	5660	II	-	Fuel Pump Controller Data Out Signal	27	0.5	GY	5660	VI	-
28	0.5	L-BU	2500	II	-	High Speed GMLAN	28	0.5	L-BU	2500	VI	-

28	0.5	L-BU	2500	II	-	High Speed GMLAN Serial Data (+) (1)	28	0.5	L-BU	2500	VI	-
29	-	-	-	-	-	Not Occupied	29	-	-	-	-	-
30	0.5	GY/BK	1570	II	-	Front Axle Actuator Control	30	0.5	GY/BK	1570	VI	-
31	0.5	YE/WH	1695	II	-	Four Wheel Drive Wheel Lock Indicator	31	0.5	YE/WH	1695	VI	-
32	0.5	L-BU/VT	1589	II	-	Primary Fuel Level Sensor Signal	32	0.5	L-BU/VT	1589	VI	-
33	0.5	RD/L-GN	2440	II	-	Battery Positive Voltage	33	0.5	RD/L-GN	2440	VI	-
34	0.5	WH	1310	II	-	EVAP Canister Vent Solenoid Control	34	0.5	WH	1310	VI	-
35	0.5	L-BU/BK	7493	II	-	High Speed GMLAN Serial Data (+)(3)	35	0.5	L-BU/BK	7493	VI	-
36	0.5	WH	7494	II	-	High Speed GMLAN Serial Data (-)(3)	36	0.5	WH	7494	VI	-
37	0.5	L-BU/YE	6105	II	-	High Speed GMLAN Serial Data (+) (2)	37	0.5	L-BU/YE	6105	VI	-
38	4	OG	742	I	-	Battery Positive Voltage	38	4	OG	742	VIII	-
39	1.5	BN	2109	IV	-	Trailer Park Lamp Supply Voltage	39	1.5	BN	2109	VII	-
40	0.5	L-GN	6974	II	-	Camera Drain Wire	40	0.5	L-GN	6974	VI	-
41	0.5	GY/YE	6972	II	-	Camera Signal #2 +	41	0.5	GY/YE	6972	VI	-
42	0.5	WH/L-BU	6973	II	-	Camera Signal #2	42	0.5	WH/L-BU	6973	VI	-
43	0.5	BK/YE	7447	II	-	Fuel Line Pressure Sensor Low Reference	43	0.5	BK/YE	7447	VI	-
44	0.5	L-BU/WH	7446	II	-	Fuel Line Pressure Sensor Signal	44	0.5	L-BU/WH	7446	VI	-
45	0.5	BN/RD	7445	II	-	Fuel Line Pressure Sensor 5V Reference	45	0.5	BN/RD	7445	VI	-
46	0.5	WH	6106	II	-	High Speed GMLAN Serial Data (-) (2)	46	0.5	WH	6106	VI	-
47	-	-	-	-	-	Not Occupied	47	-	-	-	-	-
48	2.5	L-BU	47	I	-	Trailer Auxiliary Supply Voltage	48	2.5	L-BU	47	IX	-

X110 Forward Lamp Harness to Left Front Lamp Harness





Connector Part Information

Harness Type: Forward Lamp

OEM Connector: 33472-0606

Service Connector: 13585853

Description: 6-Way F 150 MX Series, Sealed (BK)

Connector Part Information

Harness Type: Left Front Lamp

OEM Connector: 13503535

Service Connector: Service by Harness – See Part Catalog

Description: 6-Way M 150 MX Series, Sealed (BK)

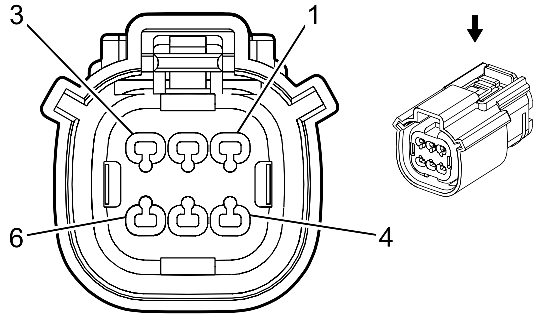
Terminal Part Information

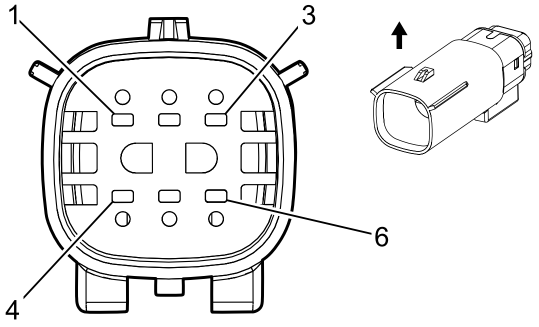
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-2A (GY)	Not Available	Not Available	Not Available	Not Available	Not Available
II	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available

X110 Forward Lamp Harness to Left Front Lamp Harness

Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
1	1.5	BK	1150	I	-	Ground	1	1.5	BK	1150	II	-
2	0.75	YE	712	I	-	Left Headlamp Low Beam Supply Voltage	2	0.75	YE	712	II	-
3	0.75	WH	711	I	-	Left Headlamp High Beam Supply Voltage	3	0.75	WH	711	II	-
4	0.75	VT/GY	709	I	-	Left Park Lamp Supply Voltage	4	0.75	VT/GY	709	II	-
5	0.75	L-BU/WH	1314	I	-	Left Front Turn Signal Lamp Supply Voltage	5	0.75	L-BU/WH	1314	II	-
6	-	-	-	-	-	Not Occupied	6	-	-	-	-	-

X120 Forward Lamp Harness to Right Front Lamp Harness





Connector Part Information

Harness Type: Forward Lamp

OEM Connector: 33472-0606

Service Connector: 13585853

Description: 6-Way F 150 MX Series, Sealed (BK)

Connector Part Information

Harness Type: Right Front Lamp

OEM Connector: 13503535

Service Connector: Service by Harness – See Part Catalog

Description: 6-Way M 150 MX Series, Sealed (BK)

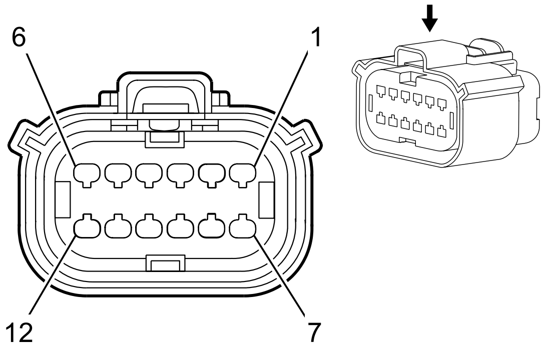
Terminal Part Information

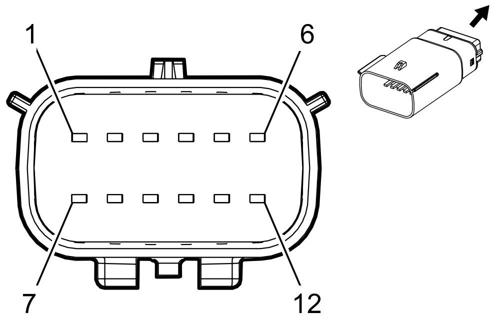
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-2A (GY)	Not Available	Not Available	Not Available	Not Available	Not Available
II	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available

X120 Forward Lamp Harness to Right Front Lamp Harness

Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
1	1.5	BK	1250	I	-	Ground	1	1.5	BK	1250	II	-
2	0.75	YE	312	I	-	Right Headlamp Low Beam Supply Voltage	2	0.75	YE	312	II	-
3	0.75	WH	311	I	-	Right Headlamp High Beam Supply Voltage	3	0.75	WH	311	II	-
4	0.75	GY/BN	309	I	-	Right Park Lamp Supply Voltage	4	0.75	GY/BN	309	II	-
5	0.75	L-GN/VT	1315	I	-	Right Front Turn Signal Lamp Supply Voltage	5	0.75	L-GN/VT	1315	II	-
6	-	-	-	-	-	Not Occupied	6	-	-	-	-	-

X160 Engine Harness to Fuel Injector Rail Harness (LCV)





Connector Part Information

Harness Type: Engine

OEM Connector: 33472-1216

Service Connector: 19150019

Description: 12-Way F 150 MX Series, Sealed (BK)

Connector Part Information

Harness Type: Fuel Injector Rail

OEM Connector: 13503542

Service Connector: Service by Harness – See Part Catalog

Description: 12-Way M ()

Terminal Part Information

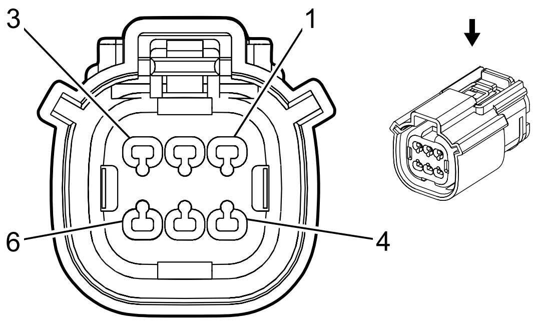
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	19300635	J-35616-2A (GY)	J-38125-217	Not Available	Not Available	Not Available	Not Available
II	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available

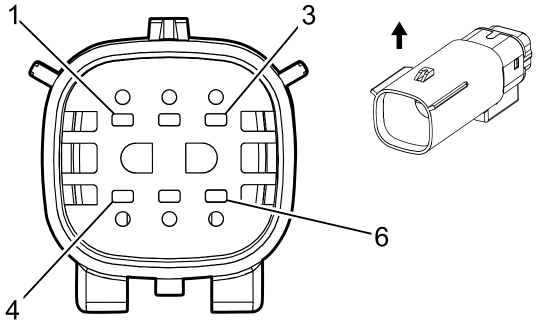
X160 Engine Harness to Fuel Injector Rail Harness (LCV)

Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
1	0.75	BN	4801	I	-	Direct Fuel Injector (DFI) High Voltage Control Cylinder 1	1	0.75	BN	4801	II	-
2	0.75	L-BU	4802	I	-	Direct Fuel Injector (DFI) High Voltage Control Cylinder 2	2	0.75	L-BU	4802	II	-
3	0.75	L-GN	4803	I	-	Direct Fuel Injector (DFI) High Voltage Control Cylinder 3	3	0.75	L-GN	4803	II	-
4	0.75	GY/L-BU	4804	I	-	Direct Fuel Injector (DFI) High Voltage Control Cylinder 4	4	0.75	GY/L-BU	4804	II	-
5	0.5	BK/L-GN	2919	I	-	Fuel Rail Pressure Sensor Low Reference	5	0.5	BK/L-GN	2919	II	-
6	-	-	-	-	-	Not Occupied	6	-	-	-	-	-
7	0.75	BN/WH	4901	I	-	Direct Fuel Injector (DFI) High Voltage Supply Cylinder 1	7	0.75	BN/WH	4901	II	-
8	0.75	L-BU/GY	4902	I	-	Direct Fuel Injector (DFI) High Voltage Supply Cylinder 2	8	0.75	L-BU/GY	4902	II	-

9	0.75	L-GN/GY	4903	I	-	Direct Fuel Injector (DFI) High Voltage Supply Cylinder 3	9	0.75	L-GN/GY	4903	II	-
10	0.75	L-BU/WH	4904	I	-	Direct Fuel Injector (DFI) High Voltage Supply Cylinder 4	10	0.75	L-BU/WH	4904	II	-
11	0.5	BN/RD	2917	I	-	Fuel Rail Pressure Sensor (5) Volt Reference	11	0.5	BN/RD	2917	II	-
12	0.5	L-BU/WH	2918	I	-	Fuel Rail Pressure Sensor Signal	12	0.5	L-BU/WH	2918	II	-

X160 Engine Harness to Fuel Injector Rail Harness (LFX)





Connector Part Information

Harness Type: Engine

OEM Connector: 33472-0606

Service Connector: 13585853

Description: 6-Way F 150 MX Series, Sealed (BK)

Connector Part Information

Harness Type: Fuel Injector Rail

OEM Connector: 13503535

Service Connector: Service by Harness – See Part Catalog

Description: 6-Way M 150 MX Series, Sealed (BK)

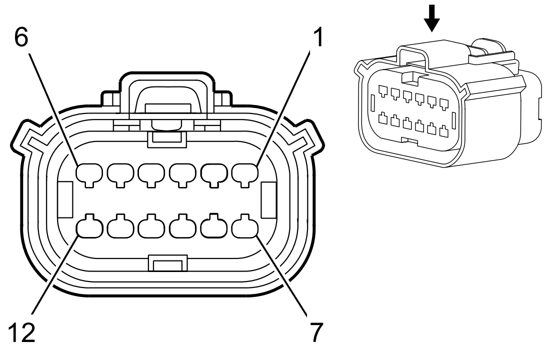
Terminal Part Information

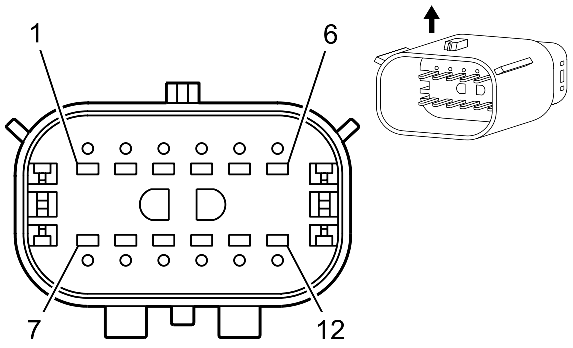
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-64B (LT BU)	Not Available	Not Available	Not Available	Not Available	Not Available
II	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available

X160 Engine Harness to Fuel Injector Rail Harness (LFX)

Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
1	0.75	BN	4801	I	-	Direct Fuel Injector (DFI) High Voltage Control Cylinder 1	1	0.75	BN	4801	II	-
2	0.75	BN/WH	4901	I	-	Direct Fuel Injector (DFI) High Voltage Supply Cylinder 1	2	0.75	BN/WH	4901	II	-
3	0.75	L-GN	4803	I	-	Direct Fuel Injector (DFI) High Voltage Control Cylinder 3	3	0.75	L-GN	4803	II	-
4	0.75	L-GN/GY	4903	I	-	Direct Fuel Injector (DFI) High Voltage Supply Cylinder 3	4	0.75	L-GN/GY	4903	II	-
5	0.75	WH/L-GN	4805	I	-	Direct Fuel Injector (DFI) High Voltage Control Cylinder 5	5	0.75	WH/L-GN	4805	II	-
6	0.75	L-GN/WH	4905	I	-	Direct Fuel Injector (DFI) High Voltage Supply Cylinder 5	6	0.75	L-GN/WH	4905	II	-

X161 Engine Harness to Fuel Injector Rail Harness (LFX)





Connector Part Information

Harness Type: Engine

OEM Connector: 19178148

Service Connector: 19178148

Description: 12-Way F 1.5 Series, Sealed (BK)

Connector Part Information

Harness Type: Fuel Injector Rail

OEM Connector: 13503543

Service Connector: Service by Harness – See Part Catalog

Description: 12-Way M 150 MX Series, Sealed (BK)

Terminal Part Information

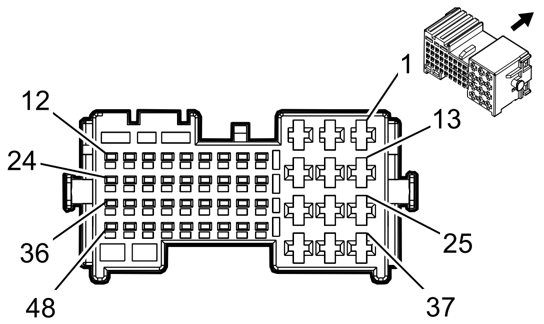
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	19300635	J-35616-2A (GY)	J-38125-217	Not Available	Not Available	Not Available	Not Available
II	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available

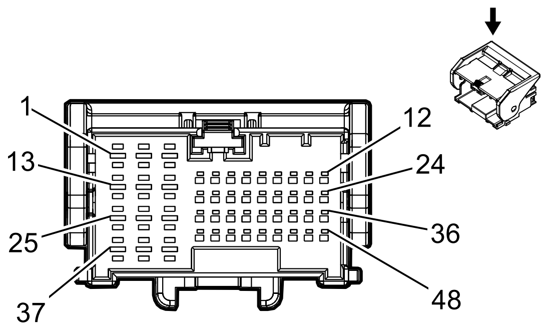
X161 Engine Harness to Fuel Injector Rail Harness (LFX)

Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
1	-	-	-	-	-	Not Occupied	1	-	-	-	-	-
2	0.75	L-BU	4802	I	-	Direct Fuel Injector (DFI) High Voltage Control Cylinder 2	2	0.75	L-BU	4802	II	-
3	0.75	GY/L-BU	4804	I	-	Direct Fuel Injector (DFI) High Voltage Control Cylinder 4	3	0.75	GY/L-BU	4804	II	-
4	0.75	VT/L-GN	4806	I	-	Direct Fuel Injector (DFI) High Voltage Control Cylinder 6	4	0.75	VT/L-GN	4806	II	-
5	0.5	BK/L-GN	2919	I	-	Fuel Rail Pressure Sensor Low Reference	5	0.5	BK/L-GN	2919	II	-
6-7	-	-	-	-	-	Not Occupied	6-7	-	-	-	-	-
8	0.75	L-BU/GY	4902	I	-	Direct Fuel Injector (DFI) High Voltage Supply Cylinder 2	8	0.75	L-BU/GY	4902	II	-
9	0.75	L-BU/WH	4904	I	-	Direct Fuel Injector (DFI) High Voltage Supply Cylinder 4	9	0.75	L-BU/WH	4904	II	-
10	0.75	VT/GY	4906	I	-	Direct Fuel Injector	10	0.75	VT/GY	4906	II	-

10	0.75	VT/GY	[illegible]	I		Direct Fuel Injector (DFI) High Voltage Supply Cylinder 6	10	0.75	VT/GY	[illegible]	II	
11	0.5	BN/RD	2917	I	-	Fuel Rail Pressure Sensor (5) Volt Reference	11	0.5	BN/RD	2917	II	-
12	0.5	L-BU/WH	2918	I	-	Fuel Rail Pressure Sensor Signal	12	0.5	L-BU/WH	2918	II	-

X200 Body Harness to Instrument Panel Harness





Connector Part Information

Harness Type: Body

OEM Connector: 2109452-2

Service Connector: 19329739

Description: 48-Way F 1.2 MCON, 2.8 MCP Series

Connector Part Information

Harness Type: Instrument Panel

OEM Connector: 2109455-2

Service Connector: 19329740

Description: 48-Way M 1.2 MCON, 2.8 MCP Series

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available
II	19329751	J-35616-16 (LT GN)	J-38125-12A	Not Available	Not Available	Not Available	Not Available
III	19119592	J-35616-35 (VT)	J-38125-557	Not Available	Not Available	Not Available	Not Available
IV	19329752	J-35616-16 (LT GN)	J-38125-12A	Not Available	Not Available	Not Available	Not Available
V	19303566	J-35616-5 (PU)	J-38125-36	Not Available	Not Available	Not Available	Not Available
VI	19329749	J-35616-64B (LT BU)	J-38125-12A	Not Available	Not Available	Not Available	Not Available
VII	19303565	J-35616-3 (GY)	J-38125-560	Not Available	Not Available	Not Available	Not Available

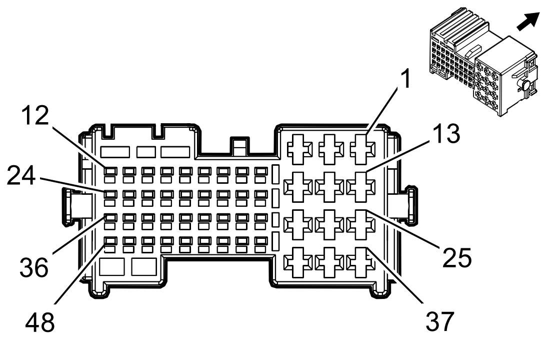
X200 Body Harness to Instrument Panel Harness

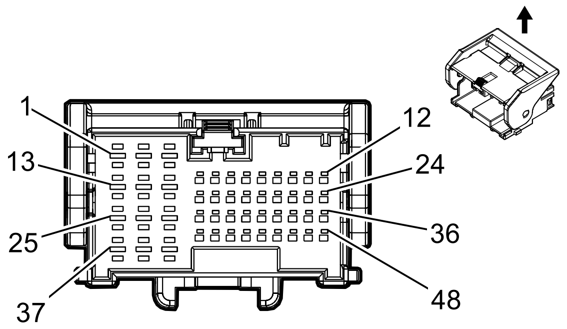
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
1	2.5	RD/VT	542	I	-	Battery Positive Voltage	1	2.5	RD/VT	542	V	-
2-3	-	-	-	-	-	Not Occupied	2-3	-	-	-	-	-
4	0.5	L-BU/YE	6105	II	-	High Speed GMLAN Serial Data (+) (2)	4	0.5	L-BU/YE	6105	VI	-
5	0.5	WH	6106	II	-	High Speed GMLAN Serial Data (-) (2)	5	0.5	WH	6106	VI	-
6	0.5	L-BU/BN	7573	II	-	Electric Variable Displacement Supply	6	0.5	L-BU/BN	7573	VI	-
7	0.5	L-BU/YE	7574	II	-	Electric Variable Displacement Control	7	0.5	L-BU/YE	7574	VI	-
8-9	-	-	-	-	-	Not Occupied	8-9	-	-	-	-	-

10	0.5	RD/L-GN	4440	II	-	Battery Positive Voltage	10	0.5	RD/L-GN	4440	VI	-
11-13	-	-	-	-	-	Not Occupied	11-13	-	-	-	-	-
14	1	L-BU	201	III	-	Left Front Speaker (+) (1)	14	0.75	L-BU	201	VII	-
15	1	BN/L-BU	118	III	-	Left Front Speaker Signal (-) (1)	15	1	BN/L-BU	118	VII	-
16-17	-	-	-	-	-	Not Occupied	16-17	-	-	-	-	-
18	0.5	GY	158	II	-	Cargo Lamp Switch Signal	18	0.35	GY	158	VI	-
19-20	-	-	-	-	-	Not Occupied	19-20	-	-	-	-	-
21	0.35	WH	6816	IV	-	Indicator Dimming Control	21	0.35	WH	6816	VI	-
22	0.5	YE	6817	II	-	LED Backlight Dimming Control	22	0.5	YE	6817	VI	-
23	0.35	YE/BN	3265	IV	-	Child Security Lock Switch Signal	23	0.35	YE/BN	3265	VI	-
24	0.35	GY	5697	IV	-	Child Lockout Indicator	24	0.35	GY	5697	VI	-
25	-	-	-	-	-	Not Occupied	25	-	-	-	-	-
26	1	L-GN/BK	116	III	-	Left Rear Speaker Signal (-)	26	1	L-GN/BK	116	VII	-
27	1	L-GN	199	III	-	Left Rear Speaker (+)	27	0.75	L-GN	199	VII	-
28-29	-	-	-	-	-	Not Occupied	28-29	-	-	-	-	-
30	0.5	BN/WH	419	II	-	Check Engine Indicator Control	30	0.35	BN/WH	419	VI	-
31	0.35	BN/YE	780	IV	-	Driver Door Lock Switch Lock Signal	31	0.35	BN/YE	780	VI	-
32	0.35	BN/WH	781	IV	-	Driver Door Lock Switch Unlock Signal	32	0.35	BN/WH	781	VI	-
33	0.5	WH	5359	II	-	Brake Apply Sensor Supply Voltage	33	0.35	WH	5359	VI	-
34	0.5	L-BU/YE	5361	II	-	Brake Apply Sensor Signal	34	0.35	L-BU/YE	5361	VI	-
35	0.5	BK/BN	5360	II	-	Brake Apply Sensor Low Reference	35	0.35	BK/BN	5360	VI	-
36	0.5		6974	II	-	Camera Drain Wire	36	0.35	BARE	6974	VI	-
37	2.5	RD/L-GN	242	III	-	Battery Positive Voltage	37	2.5	RD/L-GN	242	V	-
38-41	-	-	-	-	-	Not Occupied	38-41	-	-	-	-	-
42	0.5	BK/WH	2251	II	-	Signal Ground	42	0.5	BK/WH	2251	VI	-

43	0.5	WH/L-BU	5986	II	-	Serial Data Communication Enable	43	0.5	WH/L-BU	5986	VI	-
44	-	-	-	-	-	Not Occupied	44	-	-	-	-	-
45	0.5	BN/VT	193	II	-	Rear Defog Relay Control	45	0.35	BN/VT	193	VI	-
46	0.5	L-GN/GY	6135	II	-	Linear Interconnect Network Bus 4	46	0.5	L-GN/GY	6135	VI	-
47	0.5	GY/YE	6972	II	-	Camera Signal #2 +	47	0.35	GY/YE	6972	VI	-
48	0.5	WH/L-BU	6973	II	-	Camera Signal #2	48	0.35	WH/L-BU	6973	VI	-

X202 Body Harness to Instrument Panel Harness





Connector Part Information

Harness Type: Body

OEM Connector: 1-2109452-3

Service Connector: 19329737

Description: 48-Way F 1.2 MCON, 2.8 MCP Series

Connector Part Information

Harness Type: Instrument Panel

OEM Connector: 1-2109455-3

Service Connector: 19329738

Description: 48-Way M 1.2 MCON, 2.8 MCP Series

Terminal Part Information

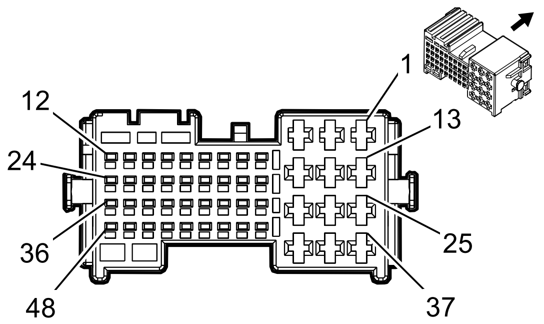
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	19329751	J-35616-16 (LT GN)	J-38125-12A	Not Available	Not Available	Not Available	Not Available
II	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available
III	19329752	J-35616-16 (LT GN)	J-38125-12A	Not Available	Not Available	Not Available	Not Available
IV	19329749	J-35616-64B (LT BU)	J-38125-12A	Not Available	Not Available	Not Available	Not Available
V	19303566	J-35616-5 (PU)	J-38125-36	Not Available	Not Available	Not Available	Not Available

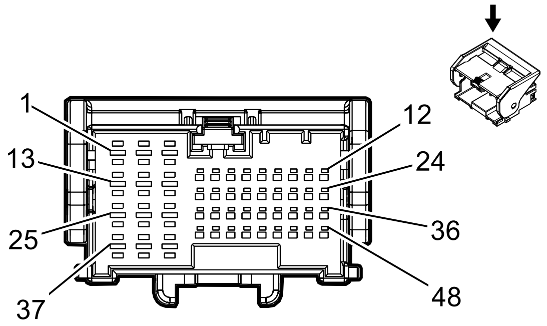
X202 Body Harness to Instrument Panel Harness

Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
1-3	-	-	-	-	-	Not Occupied	1-3	-	-	-	-	-
4	0.5	RD/GY	2140	I	-	Battery Positive Voltage	4	0.75	RD/GY	2140	IV	-
5	-	-	-	-	-	Not Occupied	5	-	-	-	-	-
6	0.35	RD/YE	3040	III	-	Battery Positive Voltage	6	0.35	RD/YE	3040	IV	-
7	0.75	RD/BN	2240	I	-	Battery Positive Voltage	7	0.75	RD/BN	2240	IV	-
8	0.35	VT	801	III	-	Retained Accessory Power Fuse Supply Voltage	8	0.35	VT	801	IV	-
9	0.5	RD/GY	2840	I	-	Battery Positive Voltage	9	0.5	RD/GY	2840	IV	-
10	0.5	VT/BN	300	I	-	Run Ignition 3 Voltage	10	0.5	VT/BN	300	IV	-
11-13	-	-	-	-	-	Not Occupied	11-13	-	-	-	-	-
14	2.5	L-BU	47	II	-	Trailer Auxiliary Supply	14	2.5	L-BU	47	V	-

						Voltage						
15	-	-	-	-	-	Not Occupied	15	-	-	-	-	-
16	0.35	GY/WH	3272	III	-	Remote Function Actuator Supply Voltage	16	0.35	GY/WH	3272	IV	-
17	0.35	YE/L-GN	3274	III	-	Remote Function Actuator Transmit Signal	17	0.35	YE/L-GN	3274	IV	-
18	0.35	L-BU/WH	3275	III	-	Remote Function Actuator Receive Signal	18	0.35	L-BU/WH	3275	IV	-
19	0.35	GY	3273	III	-	Remote Function Actuator Return	19	0.35	GY	3273	IV	-
20	0.35	GY/L-GN	328	III	-	Interior Lamp Defeat Switch Signal	20	0.35	GY/L-GN	328	IV	-
21	0.5	GY	157	I	-	Interior Lamp Control	21	0.5	GY	157	IV	-
22	0.5	YE	6817	I	-	LED Backlight Dimming Control	22	0.5	YE	6817	IV	-
23-27	-	-	-	-	-	Not Occupied	23-27	-	-	-	-	-
28	0.35	L-GN/BK	1563	III	-	2 HI Indicator Control	28	0.35	L-GN/BK	1563	IV	-
29	0.35	GY/L-GN	1561	III	-	AWD Indicator Control	29	0.35	GY/L-GN	1561	IV	-
30	0.35	BN/BK	1566	III	-	4 HI Indicator Control	30	0.35	BN/BK	1566	IV	-
31	0.35	VT/WH	1565	III	-	4 LO Indicator Control	31	0.35	VT/WH	1565	IV	-
32	0.35	BN	1560	III	-	Neutral Indicator Control	32	0.35	BN	1560	IV	-
33	0.35	GY/RD	6029	III	-	Four Wheel Drive Mode Switch 5 Volt Reference	33	0.35	GY/RD	6029	IV	-
34	0.35	L-BU/YE	1693	III	-	Four Wheel Drive Switch Signal	34	0.35	L-BU/YE	1693	IV	-
35-40	-	-	-	-	-	Not Occupied	35-40	-	-	-	-	-
41	0.5	WH/VT	5905	I	-	Key Capture/Column Lock Shift Position Signal	41	0.5	WH/VT	5905	IV	-
42	0.5	L-GN/L-BU	6133	I	-	Linear Interconnect Network Bus 2	42	0.5	L-GN/L-BU	6133	IV	-
43	0.5	WH/L-BU	3691	III	Z82	Trailer Brake Apply Signal	43	0.5	WH/L-BU	3691	IV	Z82
44	0.5	VT/BK	7553	I	-	Park Lock Solenoid Control	44	0.5	VT/BK	7553	IV	-
45-48	-	-	-	-	-	Not Occupied	45-48	-	-	-	-	-

X203 Body Harness to Instrument Panel Harness





Connector Part Information

Harness Type: Body

OEM Connector: 2109452-2

Service Connector: 19329739

Description: 48-Way F 1.2 MCON, 2.8 MCP Series

Connector Part Information

Harness Type: Instrument Panel

OEM Connector: 2109455-2

Service Connector: 19329740

Description: 48-Way M 1.2 MCON, 2.8 MCP Series

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available
II	19329752	J-35616-16 (LT GN)	J-38125-12A	Not Available	Not Available	Not Available	Not Available
III	19329751	J-35616-16 (LT GN)	J-38125-12A	Not Available	Not Available	Not Available	Not Available
IV	19119592	J-35616-35 (VT)	J-38125-557	Not Available	Not Available	Not Available	Not Available
V	19329758	J-35616-16 (LT GN)	J-38125-12A	Not Available	Not Available	Not Available	Not Available
VI	19303566	J-35616-5 (PU)	J-38125-36	Not Available	Not Available	Not Available	Not Available
VII	19329749	J-35616-64B (LT BU)	J-38125-12A	Not Available	Not Available	Not Available	Not Available
VIII	19303565	J-35616-3 (GY)	J-38125-560	Not Available	Not Available	Not Available	Not Available
IX	19329749	J-35616-13 (BU)	J-38125-12A	Not Available	Not Available	Not Available	Not Available

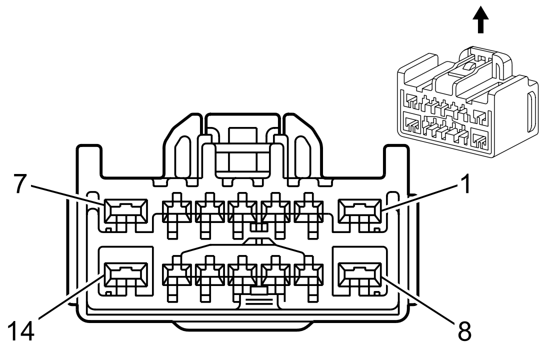
X203 Body Harness to Instrument Panel Harness

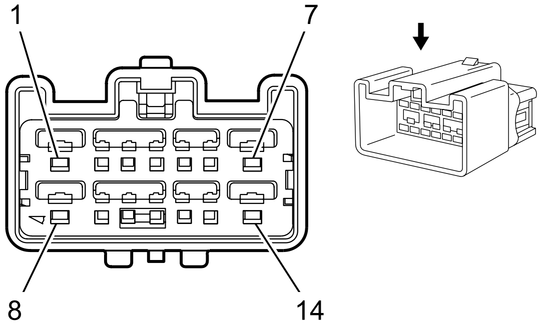
Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
1	2.5	RD/YE	3740	I	-	Battery Positive Voltage	1	2.5	RD/YE	3740	VI	-
2	1	YE/BK	117	IV	-	Right Front Speaker Signal (-) (1)	2	1 0.75	YE/BK YE/BK	117 117	VIII	-
3	1	YE	200	IV	-	Right Front Speaker (+) (1)	3	1 0.75	YE YE	200 200	VIII	-
4	0.35	YE/RD	597	II	-	5 Volt Reference	4	0.35	YE/RD	597	VII	-
5	0.35	BK/L-BU	7566	II	-	Humidity/Windscreen Temp Sensor Low Reference	5	0.35	BK/L-BU	7566	VII	-

						Reference						
6	0.35	GY/L-GN	7565	II	-	Windscreen Temp Sensor Signal	6	0.35	GY/L-GN	7565	VII	-
7	0.35	GY/L-BU	7564	II	-	Humidity Sensor Signal	7	0.35	GY/L-BU	7564	VII	-
8	0.35	YE/L-BU	3197	II	-	Humidity Temperature Sensor Signal	8	0.35	YE/L-BU	3197	VII	-
9	0.35	YE	6817	II	-	LED Backlight Dimming Control	9	0.35	YE	6817	VII	-
10	0.35	BN	6136	II	-	Supply Voltage	10	0.35	BN	6136	VII	-
11	0.5	RD/L-BU	540	III	-	Battery Positive Voltage	11	0.5	RD/L-BU	540	VII	-
12	-	-	-	-	-	Not Occupied	12	-	-	-	-	-
13	2.5	RD/VT	4040	I	-	Battery Positive Voltage	13	2.5	RD/VT	4040	VI	-
14	1	L-BU/BK	115	IV	-	Right Rear Speaker Signal (-)	14	1 0.75	L-BU/BK L-BU/BK	115 115	VIII	-
15	1	WH	46	IV	-	Right Rear Speaker (+)	15	1 0.75	WH WH	46 46	VIII	-
16	0.35	VT/WH	5234	II	-	Passenger Seat Belt Indicator	16	0.35	VT/WH	5234	VII	-
17	0.35	L-BU	2307	II	-	Passenger Air Bag On Indicator Control	17	0.35	L-BU	2307	VII	-
18	0.35	L-GN	2308	II	-	Passenger Air Bag Off Indicator Control	18	0.35	L-GN	2308	VII	-
19	0.5		1792	III	-	Drain Wire	19	0.5	BARE	1792	VII	-
20	0.35	BK/GY	5152	II	-	Voice Recognition Audio Low Reference	20	0.35	BK/GY	5152	VII	-
21	0.35	GY/YE	5149	II	-	Voice Recognition Audio Signal	21	0.35	GY/YE	5149	VII	-
22	-	-	-	-	-	Not Occupied	22	-	-	-	-	-
23	0.35	GY/WH	3153	II	-	Lane Departure Warning Disable Switch Signal	23	0.35	GY/WH	3153	VII	-
24	0.35	WH	3152	II	-	Lane Departure Warning Indicator Control	24	0.35	WH	3152	VII	-
25	2.5	RD/YE	2340	IV	-	Battery Positive Voltage	25	1	RD/YE	2340	VIII	-
26	1.5	VT	2101	I	-	Retained Accessory Power Fuse Supply Voltage	26	1.5	VT	2101	VIII	-
27	2.5	RD/L-GN	2440	IV	-	Battery Positive Voltage	27	1	RD/L-GN	2440	VIII	-
28	0.35		514	II	-	Drain Wire	28	0.35	BARE	514	VII	-
29	0.35	YE	658	II	-	Cellular Telephone	29	0.35	YE	658	VII	-

29	0.35	YE	658	II	-	Cellular Telephone Voice Signal	29	0.35	YE	658	VII	-
30	0.35	BK/YE	659	II	-	Cellular Telephone Voice Low Reference	30	0.35	BK/YE	659	VII	-
31-34	-	-	-	-	-	Not Occupied	31-34	-	-	-	-	-
35	1	RD/VT	340	V	-	Battery Positive Voltage	35	1	RD/VT	340	IX	-
36	0.5	VT/BK	1639	III	-	Run/Crank Ignition 1 Voltage	36	0.5	VT/BK	1639	IX	-
37	1.5	VT	1701	I	-	Retained Accessory Power Fuse Supply Voltage	37	1.5	VT	1701	VI	-
38	0.5	RD/VT	340	IV	-	Battery Positive Voltage	38	0.5	RD/VT	340	VIII	-
39	0.75	BK	2050	IV	-	Ground	39	0.75	BK	2050	VIII	-
40	0.5	L-BU	2500	III	-	High Speed GMLAN Serial Data (+) (1)	40	0.5	L-BU	2500	VII	-
41	0.5	WH	2501	III	-	High Speed GMLAN Serial Data (-) (1)	41	0.5	WH	2501	VII	-
42-45	-	-	-	-	-	Not Occupied	42-45	-	-	-	-	-
46	0.5	RD/VT	3340	III	-	Battery Positive Voltage	46	0.5	RD/VT	3340	VII	-
47	0.35	VT/GY	539	II	-	Run/Crank Ignition 1 Voltage	47	0.35	VT/GY	539	VII	-
48	0.5	RD/WH	640	III	-	Battery Positive Voltage	48	0.5	RD/WH	640	VII	-

X305 Instrument Panel Harness to Floor Console Harness





Connector Part Information

Harness Type: Instrument Panel

OEM Connector: 7283-6447-40

Service Connector: 88956524

Description: 14-Way F Hybrid Series (L-GY)

Connector Part Information

Harness Type: Console

OEM Connector: 7282-6447-40

Service Connector: Service by Harness - See Part Catalog

Description: 14-Way M Hybrid Series (L-GY)

Terminal Part Information

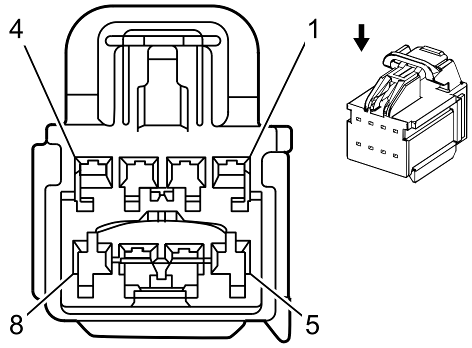
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	13575839	J-35616-35 (VT)	J-38125-11A	Not Available	Not Available	Not Available	Not Available
II	13575850	J-35616-2A (GY)	J-38125-11A	Not Available	Not Available	Not Available	Not Available
III	Not Available	J-35616-64B (L-BU)	Not Available	Not Available	Not Available	Not Available	Not Available

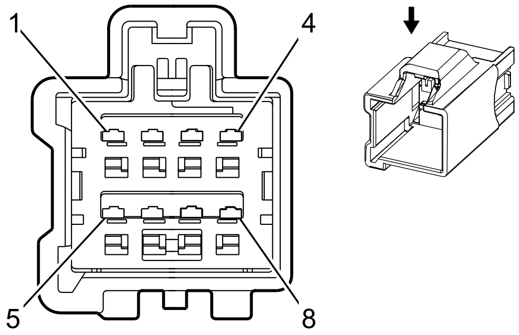
X305 Instrument Panel Harness to Floor Console Harness

Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
1	1.5	BK	2050	I	-	Ground	1	1.5	BK	2050	III	-
2	0.35	BK/WH	2051	II	-	Signal Ground	2	0.35	BK/WH	2051	III	-
3-5	-	-	-	-	-	Not Occupied	3-5	-	-	-	-	-
6	0.5	RD/VT	340	II	-	Battery Positive Voltage	6	0.5	RD/VT	340	III	-
7	1.5	VT	1701	I	-	Retained Accessory Power Fuse Supply Voltage	7	1.5	VT	1701	III	-
8	1.5	BK	2050	I	-	Ground	8	1.5	BK	2050	III	-
9	0.35	L-GN	5841	II	-	Right Auxiliary Audio Signal (2)	9	0.35	L-GN	5841	III	-
10	0.35	GY	5839	II	-	Left Auxiliary Audio Signal (2)	10	0.35	GY	5839	III	-
11	0.35	VT	5843	II	-	Auxiliary Audio Common Signal	11	0.35	VT	5843	III	-
12	0.5	BARE	5842	II	-	Auxiliary Audio Screen (2)	12	0.5	BK	5842	III	-

13	0.35	L-BU	2060	II	-	Auxiliary Detection Signal	13	0.35	L-BU	2060	III	-
14	1.5	VT	2101	I	-	Retained Accessory Power Fuse Supply Voltage	14	1.5	VT	2101	III	-

X306 Instrument Panel Harness to Floor Console Harness (MYB)





Connector Part Information

Harness Type: Instrument Panel

OEM Connector: 7283-3441-40

Service Connector: 19153166

Description: 8-Way F 1.5 Kaizen YESC Series (L-GY)

Connector Part Information

Harness Type: Console

OEM Connector: 7282-3441-40

Service Connector: Service by Harness - See Part Catalog

Description: 8-Way M 1.5 Kaizen YESC Series (L-GY)

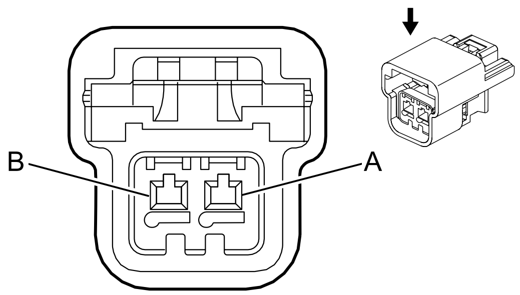
Terminal Part Information

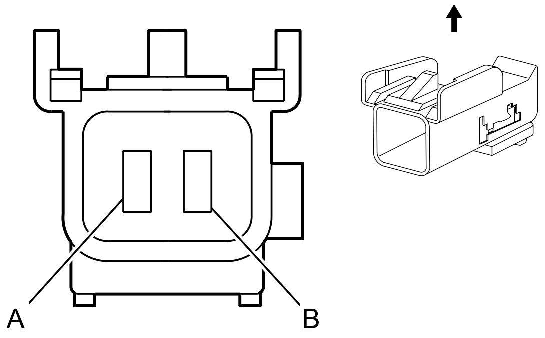
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-64B (LT BU)	Not Available	Not Available	Not Available	Not Available	Not Available
II	Not Available	J-35616-64B (L-BU)	Not Available	Not Available	Not Available	Not Available	Not Available

X306 Instrument Panel Harness to Floor Console Harness (MYB)

Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
1	0.35	VT	801	I	-	Retained Accessory Power Fuse Supply Voltage	1	0.35	VT	801	II	-
2	0.5	L-GN/L-BU	6133	I	-	Linear Interconnect Network Bus 2	2	0.5	L-GN/L-BU	6133	II	-
3	0.35	BK	2050	I	-	Ground	3	0.35	BK	2050	II	-
4-5	-	-	-	-	-	Not Occupied	4-5	-	-	-	-	-
6	0.35	VT/YE	5526	I	-	Tap Up/Tap Down Switch Signal	6	0.35	VT/YE	5526	II	-
7	0.5	VT/BK	7553	I	-	Park Lock Solenoid Control	7	0.5	VT/BK	7553	II	-
8	0.5	WH/VT	5905	I	-	Key Capture/Column Lock Shift Position Signal	8	0.5	WH/VT	5905	II	-

X206 Instrument Panel Harness to HVAC Harness (C68)





Connector Part Information

Harness Type: Instrument Panel

OEM Connector: 13668003

Service Connector: 19119754

Description: 2-Way F 150 GT FBT Series (BK)

Connector Part Information

Harness Type: HVAC

OEM Connector: 15332130

Service Connector: 88986459

Description: 2-Way M 150 GT Series (BK)

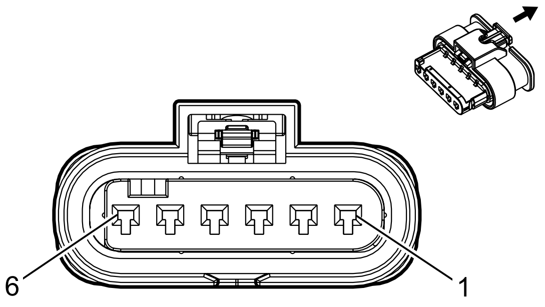
Terminal Part Information

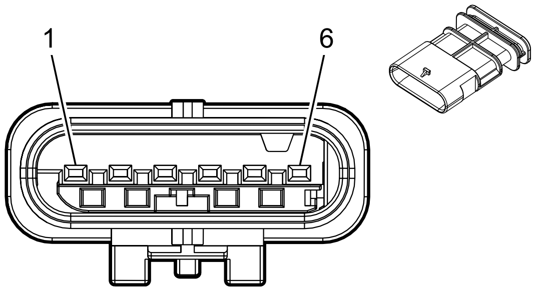
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-64B (LT BU)	Not Available	Not Available	Not Available	Not Available	Not Available
II	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available

X206 Instrument Panel Harness to HVAC Harness (C68)

Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
A	-	-	-	-	-	Not Occupied	A	-	-	-	-	-
B	0.5	BN	518	I	-	Lower Left Air Temperature Sensor Signal	B	0.5	BN	518	II	-

X207 Instrument Panel Harness to Passenger Air Bag Extension Harness





Connector Part Information

Harness Type: Instrument Panel

OEM Connector: 13866749

Service Connector: 19300377

Description: 6-Way F 1.2 MCP Series, Sealed (YE)

Connector Part Information

Harness Type: Instrument Panel Air Bag

OEM Connector: Not Available

Service Connector: Service by Harness -- See Part Catalog

Description: 6-Way M (YE)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-16	Not Available	Not Available	Not Available	Not Available	Not Available
II	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available

X207 Instrument Panel Harness to Passenger Air Bag Extension Harness

Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
1	0.35	YE/OG	3025	I	-	Passenger IP Module Stage 1 High Control	1	0.35	YE/OG	3025	II	-
2	0.35	OG/WH	3024	I	-	Passenger IP Module Stage 1 Low Control	2	0.35	OG/WH	3024	II	-
3	0.35	GY/OG	3026	I	-	Passenger IP Module Stage 2 Low Control	3	0.35	GY	3026	II	-
4	0.35	OG/VT	3027	I	-	Passenger IP Module Stage 2 High Control	4	0.35	OG/VT	3027	II	-
5	0.5	BK/WH	2051	I	-	Ground	5	0.5	BK/WH	2051	II	-
6	-	-	-	-	-	Not Occupied	6	-	-	-	-	-

X218 Instrument Panel COAX Harness to Body COAX Harness

Connector Part Information

Harness Type: Instrument Panel COAX

OEM Connector: COAX

Service Connector: Service by Cable Assembly - See Part Catalog

Description: 2-Way F Coax Type (BK)

Connector Part Information

Harness Type: Body COAX

OEM Connector: COAX

Service Connector: Service by Cable Assembly - See Part Catalog

Description: 2-Way M Coax Type (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available

X218 Instrument Panel COAX Harness to Body COAX Harness

Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
-	-	COAX	-	I	-	(AM/FM) Antenna RF Signal	-	-	COAX	-	I	-
	-	COAX	-		-	(FM2) Antenna RF Signal (2)		-	COAX	-		-

X219 Instrument Panel Harness to Body Harness

Connector Part Information

Harness Type: Instrument Panel COAX

OEM Connector: COAX

Service Connector: Service by Cable Assembly - See Part Catalog

Description: 2-Way F Coax Type (BK)

Connector Part Information

Harness Type: Body COAX

OEM Connector: COAX

Service Connector: Service by Cable Assembly - See Part Catalog

Description: 2-Way M Coax Type (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available

X219 Instrument Panel Harness to Body Harness

Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
-	-	COAX	-	I	-	(AM/FM) Antenna RF Signal	-	-	COAX	-	I	-

X220 Instrument Panel Harness to Body Harness

Connector Part Information

Harness Type: Instrument Panel COAX

OEM Connector: COAX

Service Connector: Service by Cable Assembly - See Part Catalog

Description: 2-Way F Coax Type (BK)

Connector Part Information

Harness Type: Body COAX

OEM Connector: COAX

Service Connector: Service by Cable Assembly - See Part Catalog

Description: 2-Way M Coax Type (BK)

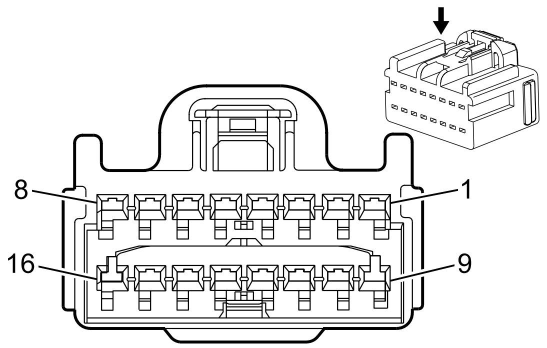
Terminal Part Information

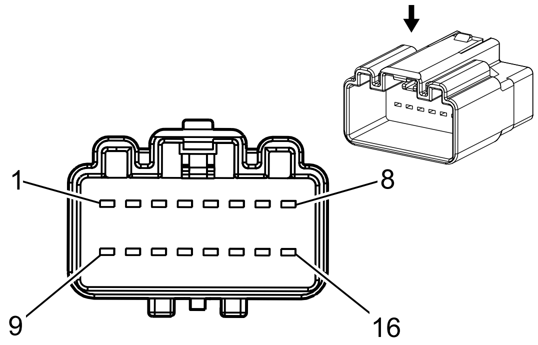
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available

X220 Instrument Panel Harness to Body Harness

Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
-	-	COAX	-	I	-	(GPS only) Coaxial Antenna GPS Signal	-	-	COAX	-	I	-

X300 Headliner Harness to Body Harness





Connector Part Information

Harness Type: Headliner

OEM Connector: 7283-6453-60

Service Connector: 89047090

Description: 16-Way F 1.5 Kaizen Series (GN)

Harness Type: Headliner Extension

OEM Connector: 7283-6453-60

Service Connector: Service by Harness - See Part Catalog

Description: 16-Way F 1.5 Kaizen Series (GN)

Connector Part Information

Harness Type: Body

OEM Connector: 7282-6453-60

Service Connector: 89047072

Description: 16-Way M 1.5 Kaizen Series (GN)

Terminal Part Information

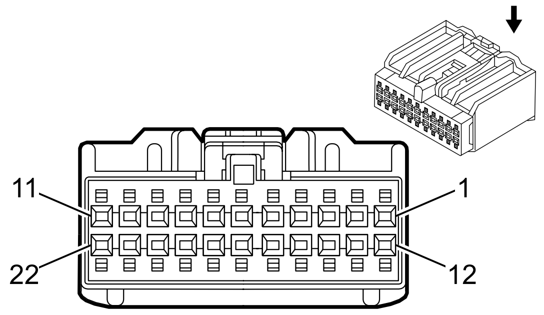
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	13578891	J-35616-2A (GY)	J-38125-11A	Not Available	Not Available	Not Available	Not Available
II	Not Available	J-35616-64B (L-BU)	Not Available	Not Available	Not Available	Not Available	Not Available
III	13575818	J-35616-3 (GY)	J-38125-553	Not Available	Not Available	Not Available	Not Available

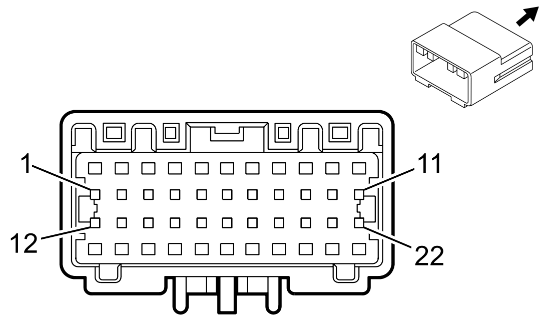
X300 Headliner Harness to Body Harness

Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
1	0.35	BK/BN	654	I	-	Cellular Telephone Microphone Low Reference	1	0.35	BK/BN	654	III	-
2	0.35	L-GN/BK	2515	I	-	Keypad Supply Voltage	2	0.35	L-GN/BK	2515	III	-
3	0.35	L-GN/WH	2514	I	-	Keypad Signal	3	0.35	L-GN/WH	2514	III	-
4	0.35	YE/VT	2516	I	-	Keypad Green LED	4	0.35	YE/VT	2516	III	-
5	0.35	BN/WH	2517	I	-	Keypad Red LED	5	0.35	BN/WH	2517	III	-
6	0.35	YE/RD	597	I	-	5 Volt Reference	6	0.35	YE/RD	597	III	-
7	0.35	BK/L-BU	7566	I	-	Humidity/Windscreen Temp Sensor Low Reference	7	0.35	BK/L-BU	7566	III	-
8	0.35	GY/L-GN	7565	I	-	Windscreen Temp Sensor Signal	8	0.35	GY/L-GN	7565	III	-

9	0.35	L-BU	655	I	-	Cellular Telephone Microphone Signal	9	0.35	L-BU	655	III	-
10	0.35	RD/L-GN	3140	I	-	Battery Positive Voltage	10	0.35	RD/L-GN	3140	III	-
11	0.35	BK	3450	I	-	Ground	11	0.35	BK	3150	III	-
12	0.35	WH	3152	I	-	Lane Departure Warning Indicator Control	12	0.35	WH	3152	III	-
13	0.35	GY/WH	3153	I	-	Lane Departure Warning Disable Switch Signal	13	0.35	GY/WH	3153	III	-
14	0.35	GY/L-BU	7564	I	-	Humidity Sensor Signal	14	0.35	GY/L-BU	7564	III	-
15	0.35	YE/L-BU	3197	I	-	Humidity Temperature Sensor Signal	15	0.35	YE/L-BU	3197	III	-
16	-	-	-	-	-	Not Occupied	16	-	-	-	-	-

X301 Headliner Harness to Body Harness





Connector Part Information

Harness Type: Headliner

OEM Connector: AIT2PB-22-2AK

Service Connector: 13504097

Description: 22-Way F 0.64 Kaizen Series (BK)

Harness Type: Headliner Extension

OEM Connector: AIT2PB-22-2AK

Service Connector: Service by Harness - See Part Catalog

Description: 22-Way F 0.64 Kaizen Series (BK)

Connector Part Information

Harness Type: Body

OEM Connector: 13892299

Service Connector: 19119921

Description: 22-Way M 0.64 Series (BK)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	13575867	J-35616-64B (L-BU)	J-38125-215A	Not Available	Not Available	Not Available	Not Available
II	13575867	J-35616-64B (L-BU)	J-38125-12A	Not Available	Not Available	Not Available	Not Available
III	Not Available	J-35616-64B (L-BU)	Not Available	Not Available	Not Available	Not Available	Not Available
IV	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available
V	19299859	J-35616-65B (LT BU)	J-38125-215A	Not Available	Not Available	Not Available	Not Available

X301 Headliner Harness to Body Harness

Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
1	0.35	GY/WH	3272	I	-	Remote Function Actuator Supply Voltage	1	0.35	GY/WH	3272	IV	-
2	0.35	YE/L-GN	3274	I	-	Remote Function Actuator Transmit Signal	2	0.35	YE/L-GN	3274	IV	-
3	0.35	L-BU/WH	3275	I	-	Remote Function Actuator Receive Signal	3	0.35	L-BU/WH	3275	IV	-
4	0.35	GY	3273	I	-	Remote Function Actuator Return	4	0.35	GY	3273	IV	-
5	0.5	YE	6817	I	-	LED Backlight Dimming Control	5	0.5	YE	6817	IV	-

6	0.5	WH/BN	6815	I	-	Inadvertent Power Control	6	0.75	WH/BN	6815	V	-
7	0.5	GY	157	I	-	Interior Lamp Control	7	0.5	GY	157	IV	-
8	0.35	GY/L-GN	328	I	-	Interior Lamp Defeat Switch Signal	8	0.35	GY/L-GN	328	IV	-
9	0.35	GY	156	I	-	Courtesy Lamp Switch Signal	9	0.35	GY	156	IV	-
10	0.5	VT/L-GN	1739	I	-	Run/Crank Ignition 1 Voltage	10	0.5	VT/L-GN	1739	IV	-
11	0.5	L-GN/WH	24	I	-	Backup Lamp Supply Voltage	11	0.5	L-GN/WH	24	IV	-
12	0.75	BK	2050	II	-	Ground	12	0.75	BK	3150	V	-
13	-	-	-	-	-	Not Occupied	13	-	-	-	-	-
14	0.35	VT/WH	5234	I	-	Passenger Seat Belt Indicator	14	0.35	VT/WH	5234	IV	-
15	0.35	L-BU	2307	I	-	Passenger Air Bag On Indicator Control	15	0.35	L-BU	2307	IV	-
16	0.35	L-GN	2308	I	-	Passenger Air Bag Off Indicator Control	16	0.35	L-GN	2308	IV	-
17	0.5	L-GN	5060	I	-	Low Speed GMLAN Serial Data	17	0.5	L-GN	5060	IV	-
18							18	0.5	L-GN/BN	6132	IV	-
19	0.35	VT/WH	1139	I	-	Run/Crank Ignition 1 Voltage	19	0.35	VT/WH	1139	IV	-
20-22	-	-	-	-	-	Not Occupied	20-22	-	-	-	-	-

X302 Floor Console Harness to Instrument Panel Harness

Connector Part Information

Harness Type: Console USB

OEM Connector: 13584760

Service Connector: Service by Cable Assembly — See Part Catalog

Description: 5-Way F 2.0 Mini B USB Type (BK)

Connector Part Information

Harness Type: Instrument Panel USB

OEM Connector: RSD-111014-152

Service Connector: Service by Cable Assembly — See Part Catalog

Description: 5-Way M 2.0 Mini B USB Type (BK)

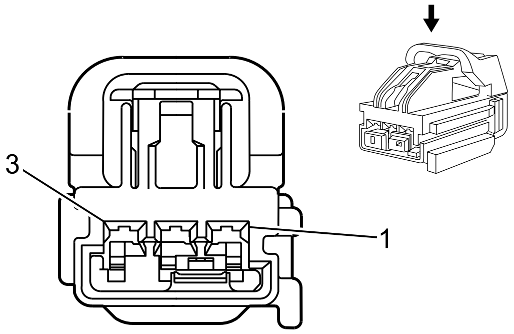
Terminal Part Information

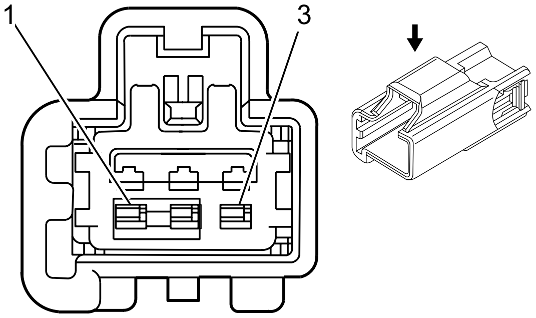
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available

X302 Floor Console Harness to Instrument Panel Harness

Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
-	-	USB	-	I	-	USB Serial Data	-	-	USB	-	I	-

X303 Body Harness to CHMSL Harness





Connector Part Information

Harness Type: Body

OEM Connector: 7283-3440-40

Service Connector: 19149536

Description: 3-Way F 1.5 Kaizen Series (L-GY)

Connector Part Information

Harness Type: CHMSL

OEM Connector: 7282-3440-40

Service Connector: 19167751

Description: 3-Way M 1.5 Kaizen YESC Series (L-GY)

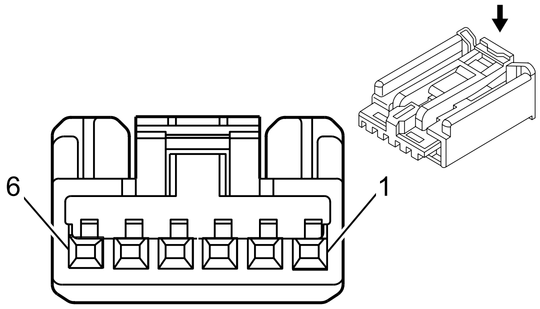
Terminal Part Information

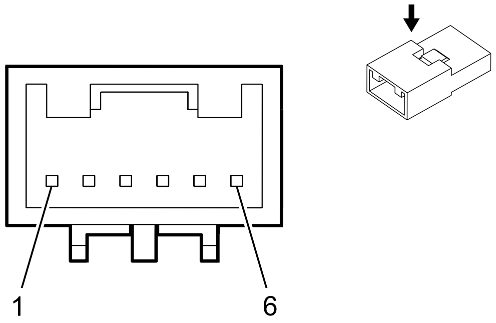
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available

X303 Body Harness to CHMSL Harness

Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
1	0.75	WH/VT	1430	I	-	Exterior Courtesy Lamp Supply Voltage	1	0.75	BN	1430	I	-
2	0.35	VT/GY	1054	I	-	Stop Lamp Supply Voltage	2	0.35	RD	1054	I	-
3	0.75	BK	3150	I	-	Ground	3	0.75	BK	3150	I	-

X304 Windshield Sensor Harness to Headliner Harness (C68)





Connector Part Information

Harness Type: Windshield Sensor

OEM Connector: 15269798

Service Connector: 19167753

Description: 6-Way F 0.64 Kaizen Series (BK)

Connector Part Information

Harness Type: Headliner

OEM Connector: AIT2WSB-06-1AK

Service Connector: 19153436

Description: 6-Way M 0.64 Kaizen Series (BK)

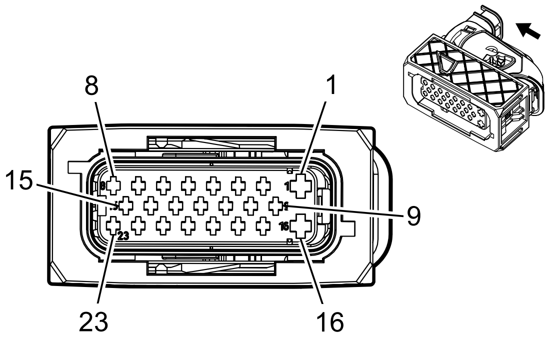
Terminal Part Information

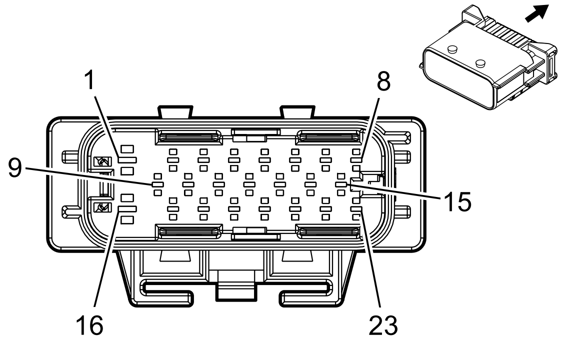
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-64B (L-BU)	Not Available	Not Available	Not Available	Not Available	Not Available
II	Not Available	J-35616-65B (L-BU)	Not Available	Not Available	Not Available	Not Available	Not Available

X304 Windshield Sensor Harness to Headliner Harness (C68)

Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
1	0.35	RD	597	I	-	5 Volt Reference	1	0.35	YE/RD	597	II	-
2	0.35	D-BU	7564	I	-	Humidity Sensor Signal	2	0.35	GY/L-BU	7564	II	-
3	0.35	BK	7566	I	-	Humidity/Windscreen Temp Sensor Low Reference	3	0.35	BK/L-BU	7566	II	-
4	0.35	L-GN	7565	I	-	Windscreen Temp Sensor Signal	4	0.35	GY/L-GN	7565	II	-
5	0.35	YE	3197	I	-	Humidity Temperature Sensor Signal	5	0.35	YE/L-BU	3197	II	-
6	-	-	-	-	-	Not Occupied	6	-	-	-	-	-

X310 Driver Seat Harness to Body Harness





Connector Part Information

Harness Type: Driver Seat

OEM Connector: 13674800

Service Connector: Service by Harness – See Part Catalog

Description: 23-Way F 1.5 DSQ, 2.8 AST Series, Sealed (BK)

Connector Part Information

Harness Type: Body

OEM Connector: 13674783

Service Connector: 19119358

Description: 23-Way M 1.5 DSQ, 2.8 AST Series, Sealed (BK)

Terminal Part Information

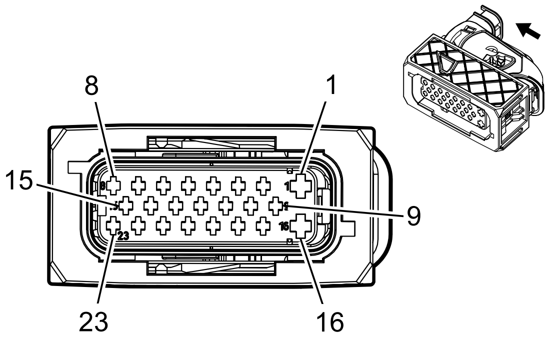
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available
II	13578881	J-35616-5 (PU)	J-38125-36	Not Available	Not Available	Not Available	Not Available
III	13327188	J-35616-3 (GY)	J-38125-560	Not Available	Not Available	Not Available	Not Available
IV	13327190	J-35616-3 (GY)	J-38125-560	Not Available	Not Available	Not Available	Not Available
V	13579756	J-35616-3 (GY)	J-38125-560	Not Available	Not Available	Not Available	Not Available

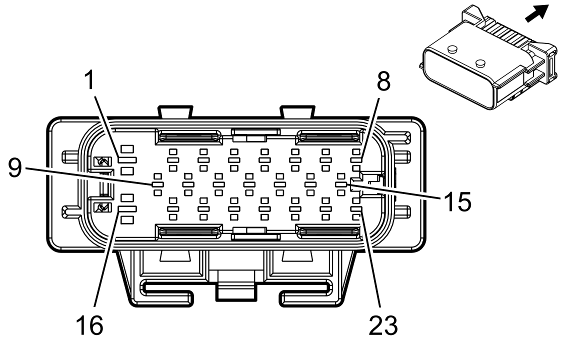
X310 Driver Seat Harness to Body Harness

Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
1	2.5	RD/YE	5040	I	AH9	Battery Positive Voltage	1	2.5	RD/YE	5040	II	AH9
2-6	-	-	-	-	-	Not Occupied	2-6	-	-	-	-	-
7	0.35	YE/OG	3482	I	CREW CAB	Driver Seat Belt Anchor Pretensioner Low Control	7	0.35	YE/OG	3482	V	CREW CAB
8	0.35	OG/YE	3481	I	CREW CAB	Driver Seat Belt Anchor Pretensioner High Control	8	0.35	OG/YE	3481	V	CREW CAB
9-10	-	-	-	-	-	Not Occupied	9-10	-	-	-	-	-
11	0.35	OG/BN	238	I	-	Driver Seat Belt Switch Signal	11	0.35	OG/BN	238	III	-
12	-	-	-	-	-	Not Occupied	12	-	-	-	-	-
13	0.75	BN	2432	I	KA1	Driver Heated Back Element Supply Voltage	13	0.75	BN	2432	IV	KA1

						Voltage					
14	-	-	-	-	-	Not Occupied	14	-	-	-	-	-
15	0.35	L-GN/OG	3069	I	AY0	Driver Side Impact Module Low Control	15	0.35	L-GN/OG	3069	V	AY0
16	2.5	BK	3750	I	AH6/KA1/AL9	Ground	16	2.5	BK	3750	II	AH6/KA1/AL9
17-18	-	-	-	-	-	Not Occupied	17-18	-	-	-	-	-
19	0.35	BK/OG	1363	I	-	Driver Seat Belt Switch Low Reference	19	0.35	BK/OG	1363	V	-
20	-	-	-	-	-	Not Occupied	20	-	-	-	-	-
21	0.75	BN/VT	2077	I	KA1	Driver Heated Seat Element Supply Voltage	21	0.75	BN/VT	2077	IV	KA1
22	-	-	-	-	-	Not Occupied	22	-	-	-	-	-
23	0.35	OG/L-BU	3068	I	AY0	Driver Side Impact Module High Control	23	0.35	OG/L-BU	3068	V	AY0

X320 Passenger Seat Harness to Body Harness





Connector Part Information

Harness Type: Passenger Seat

OEM Connector: 13674800

Service Connector: Service by Harness – See Part Catalog

Description: 23-Way F 1.5 DSQ, 2.8 AST Series, Sealed (BK)

Connector Part Information

Harness Type: Body

OEM Connector: 13674783

Service Connector: 19119358

Description: 23-Way M 1.5 DSQ, 2.8 AST Series, Sealed (BK)

Terminal Part Information

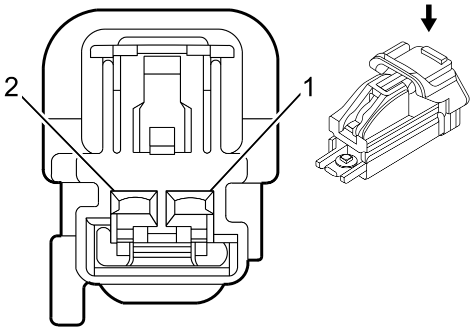
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available
II	13578881	J-35616-5 (PU)	J-38125-36	Not Available	Not Available	Not Available	Not Available
III	13579756	J-35616-3 (GY)	J-38125-560	Not Available	Not Available	Not Available	Not Available
IV	13327190	J-35616-3 (GY)	J-38125-560	Not Available	Not Available	Not Available	Not Available
V	13579985	J-35616-3 (GY)	J-38125-560	Not Available	Not Available	Not Available	Not Available

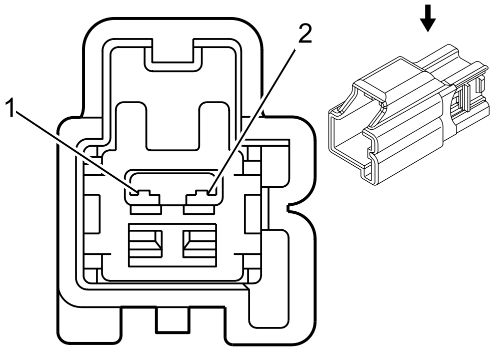
X320 Passenger Seat Harness to Body Harness

Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
1	2.5	RD/BN	1440	I	AAQ	Battery Positive Voltage	1	2.5	RD/BN	1440	II	AAQ
2	-	-	-	-	-	Not Occupied	2	-	-	-	-	-
3	0.75	RD/L-GN	5140	I	KA1	Battery Positive Voltage	3	0.75	RD/L-GN	5140	IV	KA1
4	-	-	-	-	-	Not Occupied	4	-	-	-	-	-
5	0.5	BK/WH	2251	I	AL0	Signal Ground	5	0.5	BK/WH	2251	V	AL0
6	0.35	L-GN	5060	I	AL0	Low Speed GMLAN Serial Data	6	0.35	L-GN	5060	III	AL0
7	0.35	GY/OG	3480	I	CREW CAB	Passenger Seat Belt Anchor Pretensioner Low Control	7	0.35	GY/OG	3480	III	CREW CAB
8	0.35	OG/BN	3479	I	CREW CAB	Passenger Seat Belt Anchor Pretensioner High Control	8	0.35	OG/BN	3479	III	CREW CAB
9	0.75	RD/L-GN	6140	I	KA1	Battery Positive Voltage	9	0.75	RD/L-GN	6140	IV	KA1

9	0.75	RD/L-GN	6140	I	KA1	Battery Positive Voltage	9	0.75	RD/L-GN	6140	IV	KA1
10	-	-	-	-	-	Not Occupied	10	-	-	-	-	-
11	0.35	OG/VT	1362	I	-	Passenger Seat Belt Switch Signal	11	0.35	OG/VT	1362	III	-
12	0.35	RD/L-GN	4440	I	AL0	Battery Positive Voltage	12	0.35	RD/L-GN	4440	III	AL0
13	0.75	BN	2432	I	KA1	Driver Heated Back Element Supply Voltage	13	0.75	BN	2432	IV	KA1
14	-	-	-	-	-	Not Occupied	14	-	-	-	-	-
15	0.35	BN/OG	3067	I	AY0	Passenger Side Impact Module Low Control	15	0.35	BN/OG	3067	III	AY0
16	2.5	BK	3850	I	AAQ/KA1/AT9	Ground	16	2.5	BK	3850	II	AAQ/KA1/AT9
17	-	-	-	-	-	Not Occupied	17	-	-	-	-	-
18	0.5	L-GN/L-BU	6133	I	KA1	Linear Interconnect Network Bus 2	18	0.5	L-GN/L-BU	6133	IV	KA1
19	0.35	BK/OG	1361	I	-	Passenger Seat Belt Switch Low Reference	19	0.35	BK/OG	1361	III	-
20	-	-	-	-	-	Not Occupied	20	-	-	-	-	-
21	0.75	BN/VT	2077	I	KA1	Driver Heated Seat Element Supply Voltage	21	0.75	BN/VT	2077	IV	KA1
22	-	-	-	-	-	Not Occupied	22	-	-	-	-	-
23	0.35	OG/GY	3066	I	AY0	Passenger Side Impact Module High Control	23	0.35	OG/GY	3066	III	AY0

X399 Instrument Panel Harness to Instrument Panel Harness





Connector Part Information

Harness Type: Instrument Panel

OEM Connector: 7283-6443-40

Service Connector: 88988504

Description: 2-Way F 1.5 YESC Series (L-GY)

Connector Part Information

Harness Type: Instrument Panel

OEM Connector: 7282-6443-40

Service Connector: 88988503

Description: 2-Way M 1.5 Series (L-GY)

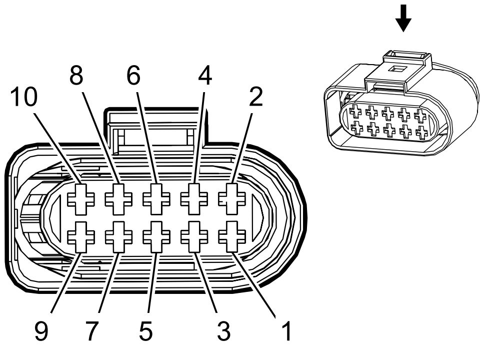
Terminal Part Information

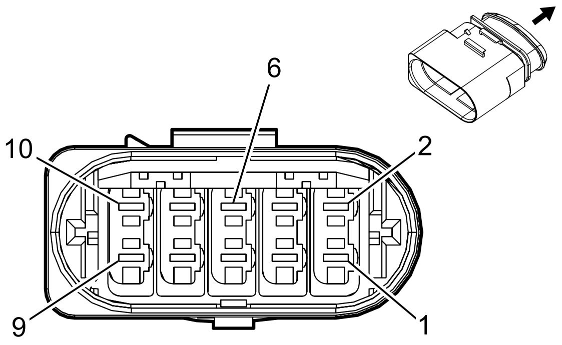
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-64B (LT BU)	Not Available	Not Available	Not Available	Not Available	Not Available

X399 Instrument Panel Harness to Instrument Panel Harness

Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
1	0.5	GY/VT	3998	I	-	MOST Serial Data (+)	1	0.5	GY/VT	3998	I	-
2	0.5	WH/L-GN	3997	I	-	MOST Serial Data (-)	2	0.5	WH/L-GN	3997	I	-

X400 Chassis Harness to License Lamp Harness





Connector Part Information

Harness Type: Chassis

OEM Connector: 493577-2

Service Connector: 19301910

Description: 10-Way F 2.8 Junior Mini Timer Series, Sealed (BK)

Connector Part Information

Harness Type: License Lamp

OEM Connector: 1718167-1

Service Connector: Service by Harness - See Part Catalog

Description: 10-Way M 2.8 Series, Sealed (BK)

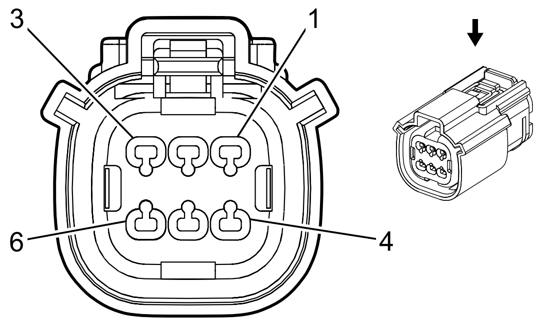
Terminal Part Information

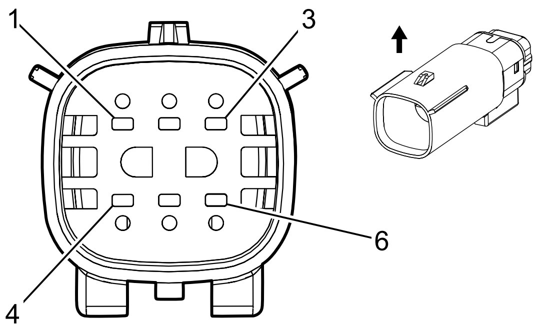
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	13580821	J-35616-4A (PU)	J-38125-36	Not Available	Not Available	Not Available	Not Available
II	Not Available	J-35616-64B (L-BU)	Not Available	Not Available	Not Available	Not Available	Not Available

X400 Chassis Harness to License Lamp Harness

Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
1	0.5	L-GN/YE	6846	I	-	Rear License Lamp Supply Voltage	1	0.5	L-GN/YE	6846	II	-
2	0.5	BK	750	I	-	Ground	2	0.5	BK	750	II	-
3–4	-	-	-	-	-	Not Occupied	3–4	-	-	-	-	-
5	0.5	WH/L-BU	6973	I	-	Camera Signal #2	5	0.5	WH/L-BU	6973	II	-
6	0.5	GY/YE	6972	I	-	Camera Signal #2 +	6	0.5	GY/YE	6972	II	-
7	0.5	L-GN	6974	I	-	Camera Drain Wire	7	0.5	L-GN	6974	II	-
8	0.5	BK/WH	751	I	-	Signal Ground	8	0.5	BK/WH	751	II	-
9	0.5	VT/L-GN	1739	I	-	Run/Crank Ignition 1 Voltage	9	0.5	VT/L-GN	1739	II	-
10	0.5	L-GN/WH	24	I	-	Backup Lamp Supply Voltage	10	0.5	L-GN/WH	24	II	-

X410 Left Rear Lamp Harness to Chassis Harness





Connector Part Information

Harness Type: Left Rear Lamp

OEM Connector: 19178149

Service Connector: 13585853

Description: 6-Way F 150 MX Series, Sealed (BK)

Connector Part Information

Harness Type: Chassis

OEM Connector: 13503535

Service Connector: 13576414

Description: 6-Way M 150 MX Series, Sealed (BK)

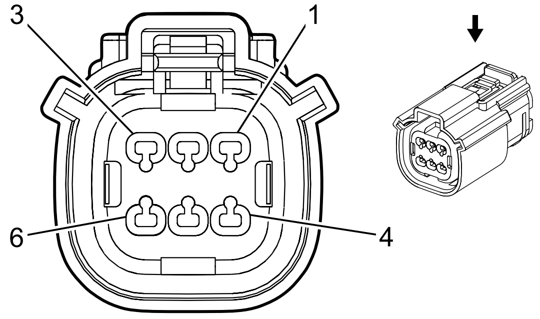
Terminal Part Information

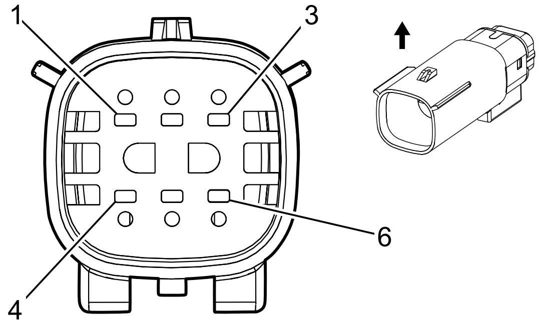
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available
II	Not Available	J-35616-64B (LT BU)	Not Available	Not Available	Not Available	Not Available	Not Available

X410 Left Rear Lamp Harness to Chassis Harness

Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
1	0.5	L-GN/WH	24	I	-	Backup Lamp Supply Voltage	1	0.5	L-GN/WH	24	II	-
2	0.75	BN/L-BU	2509	I	-	Left Rear Park Lamp Supply Voltage	2	0.75	BN/L-BU	2509	II	-
3	0.75	GY/YE	7542	I	-	Left Rear Stop Lamp Supply Voltage	3	0.75	GY/YE	7542	II	-
4	1.5	BK	750	I	-	Ground	4	1.5	BK	750	II	-
5-6	-	-	-	-	-	Not Occupied	5-6	-	-	-	-	-

X420 Right Rear Lamp Harness to Chassis Harness





Connector Part Information

Harness Type: Right Rear Lamp

OEM Connector: 19178149

Service Connector: 13585853

Description: 6-Way F 150 MX Series, Sealed (BK)

Connector Part Information

Harness Type: Chassis

OEM Connector: 13503535

Service Connector: 13576414

Description: 6-Way M 150 MX Series, Sealed (BK)

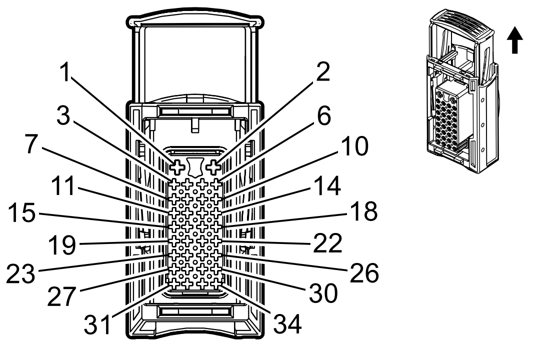
Terminal Part Information

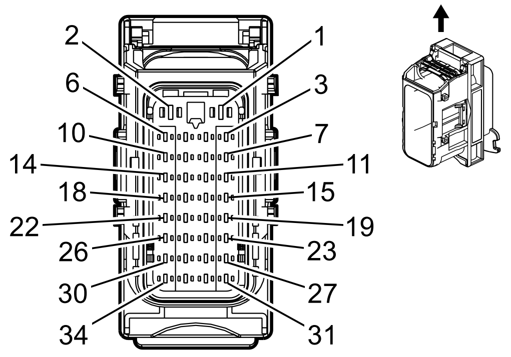
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available
II	Not Available	J-35616-64B (LT BU)	Not Available	Not Available	Not Available	Not Available	Not Available

X420 Right Rear Lamp Harness to Chassis Harness

Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
1	0.5	L-GN/WH	24	I	-	Backup Lamp Supply Voltage	1	0.5	L-GN/WH	24	II	-
2	0.75	BN/GY	2609	I	-	Right Rear Park Lamp Supply Voltage	2	0.75	BN/GY	2609	II	-
3	0.75	WH/YE	7541	I	-	Right Rear Stop Lamp Supply Voltage	3	0.75	WH/YE	7541	II	-
4	1.5	BK	850	I	-	Ground	4	1.5	BK	850	II	-
5-6	-	-	-	-	-	Not Occupied	5-6	-	-	-	-	-

X500 Body Harness to Driver Door Harness





Connector Part Information

Harness Type: Body

OEM Connector: 30432411

Service Connector: 19300485

Description: 34-Way F 1.5, 2.8 Series, Sealed (BK)

Connector Part Information

Harness Type: Driver Door

OEM Connector: 3 053 06 11

Service Connector: Service by Harness - See Part Catalog

Description: 34-Way M 1.5, 2.8 Series, Sealed (BK)

Terminal Part Information

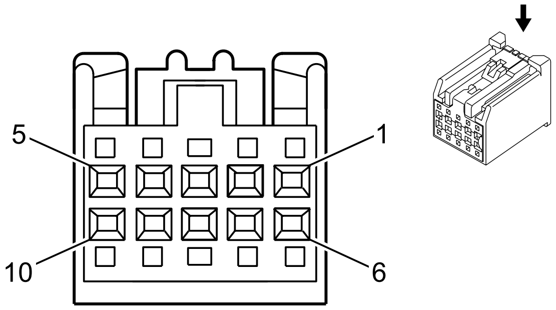
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available
II	13588058	J-35616-14 (GN)	J-38125-560	964274-2	16	E	1
III	13587465	J-35616-14 (GN)	J-38125-560	4-969005-1	16	E	1
IV	Not Available	J-35616-64B (L-BU)	Not Available	Not Available	Not Available	Not Available	Not Available

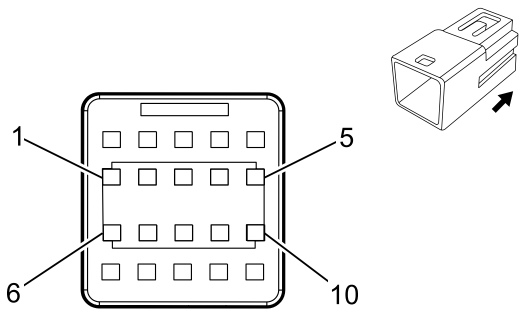
X500 Body Harness to Driver Door Harness

Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
1	2.5	RD/L-BU	1240	I	-	Battery Positive Voltage	1	2.5	RD/L-BU	1240	IV	-
2	2.5	BK	3550	I	-	Ground	2	2.5	BK	3550	IV	-
3	0.35	WH	3398	III	-	Co-Driver Mirror Motor Common Control	3	0.35	WH	3398	IV	-
4	0.5	BN/YE	2267	II	-	Mirror Heating Element Supply Voltage	4	0.5	BN/YE	2267	IV	-
5	0.35	YE/VT	3397	III	-	Co-Driver Mirror Motor Up (+) Down (-) Control	5	0.35	YE/VT	3397	IV	-
6	0.35	L-GN/BK	3396	III	-	Co-Driver Mirror Motor Right (+) Left (-) Control	6	0.35	L-GN/BK	3396	IV	-
7-8	-	-	-	-	-	Not Occupied	7-8	-	-	-	-	-
9	1	BN/L-BU	118	II	-	Left Front Speaker Signal (-) (1)	9	1	BN/L-BU	118	IV	-
10	1	L-BU	201	II	-	Left Front Speaker (+) (1)	10	1	L-BU	201	IV	-

11	-	-	-	-	-	Not Occupied	11	-	-	-	-	-
12	0.35	WH	6816	III	-	Indicator Dimming Control	12	0.35	WH	6816	IV	-
13	-	-	-	-	-	Not Occupied	13	-	-	-	-	-
14	0.35	OG/L-GN	2132	III	-	Left Front Side Impact Sensing Module Signal	14	0.35	OG/L-GN	2132	IV	-
15	0.35	BK/OG	6628	III	-	Left Front Side Impact Sensing Module Low Reference	15	0.35	BK/OG	6628	IV	-
16	0.35	RD/VT	1940	III	-	Battery Positive Voltage	16	0.5	RD/VT	1940	IV	-
17	0.35	BN/WH	781	III	-	Driver Door Lock Switch Unlock Signal	17	0.35	BN/WH	781	IV	-
18	0.35	BN/YE	780	III	-	Driver Door Lock Switch Lock Signal	18	0.35	BN/YE	780	IV	-
19	0.75	BN/YE	294	II	-	Door Lock Actuator Unlock Control	19	0.75	BN/YE	294	IV	-
20	0.75	GY	5911	II	-	Door Lock Actuator Lock Control 2	20	0.75	GY	5911	IV	-
21-25	-	-	-	-	-	Not Occupied	21-25	-	-	-	-	-
26	0.35	YE	6817	III	-	LED Backlight Dimming Control	26	0.35	YE	6817	IV	-
27-31	-	-	-	-	-	Not Occupied	27-31	-	-	-	-	-
32	0.35	GY	5697	III	-	Child Lockout Indicator	32	0.35	GY	5697	IV	-
33	0.5	L-GN/YE	6134	II	-	Linear Interconnect Network Bus 3	33	0.5	L-GN/YE	6134	IV	-
34	0.35	YE/BN	3265	III	-	Child Security Lock Switch Signal	34	0.35	YE/BN	3265	IV	-

X510 Driver Outside Rearview Mirror Harness to Driver Door Harness





Connector Part Information

Harness Type: Driver Outside Rearview Mirror

OEM Connector: 13577390

Service Connector: 13577390

Description: 10-Way F 0.64 Kaizen Series (BK)

Connector Part Information

Harness Type: Driver Door

OEM Connector: AIT2WSB-10A-2AK

Service Connector: Service by Harness - See Part Catalog

Description: 10-Way M 0.64 Kaizen Series (BK)

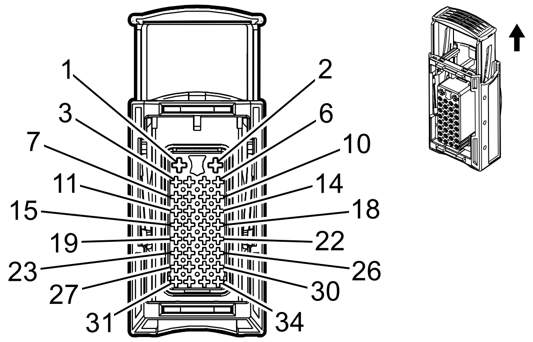
Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available
II	Not Available	J-35616-64B (L-BU)	Not Available	Not Available	Not Available	Not Available	Not Available

X510 Driver Outside Rearview Mirror Harness to Driver Door Harness

Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
1	0.35	YE/BN	3391	I	DL6	Driver Mirror Motor Common Control	1	0.35	YE/BN	3391	II	DL6
2	0.35	VT/L-BU	3390	I	DL6	Driver Mirror Motor Up (+) Down (-) Control	2	0.35	VT/L-BU	3390	II	DL6
3	0.35	BN/BK	3389	I	DL6	Driver Mirror Motor Right (+) Left (-) Control	3	0.35	BN/BK	3389	II	DL6
4	0.5	BN/YE	2267	I	DL9	Mirror Heating Element Supply Voltage	4	0.5	BN/YE	2267	II	DL9
5	0.5	BK	3550	I	DL9	Ground	5	0.5	BK	3550	II	DL9
6-10	-	-	-	-	-	Not Occupied	6-10	-	-	-	-	-

X600 Body Harness to Passenger Door Harness



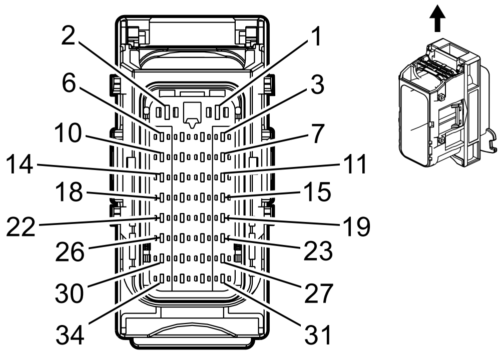
Connector Part Information

Harness Type: Body

OEM Connector: 30432411

Service Connector: 19300485

Description: 34-Way F 1.5, 2.8 Series, Sealed (BK)



Connector Part Information

Harness Type: Passenger Door

OEM Connector: 3 053 06 11

Service Connector: Service by Harness - See Part Catalog

Description: 34-Way M 1.5, 2.8 Series, Sealed (BK)

Terminal Part Information

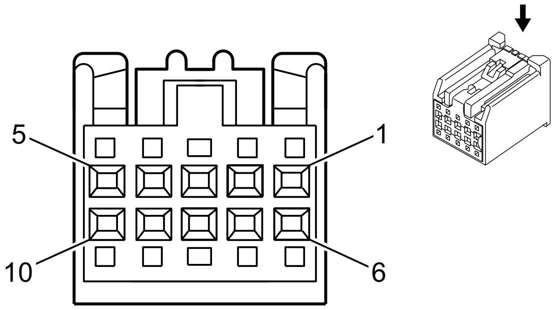
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available
II	13588058	J-35616-14 (GN)	J-38125-560	964274-2	16	E	1
III	13587465	J-35616-14 (GN)	J-38125-560	4-969005-1	16	E	1
IV	Not Available	J-35616-64B (L-BU)	Not Available	Not Available	Not Available	Not Available	Not Available

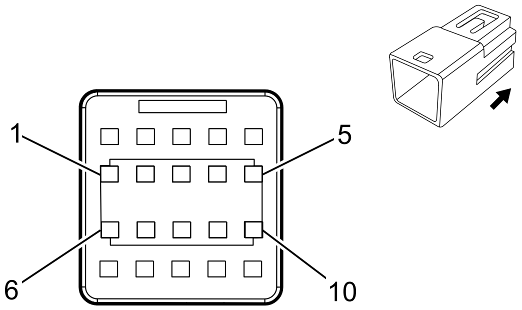
X600 Body Harness to Passenger Door Harness

Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
1	2.5	RD/WH	1340	I	-	Battery Positive Voltage	1	2.5	RD/WH	1340	IV	-
2	2.5	BK	3650	I	-	Ground	2	2.5	BK	3650	IV	-
3	0.35	WH	3398	III	-	Co-Driver Mirror Motor Common Control	3	0.35	WH	3398	IV	-
4	0.5	BN/YE	2267	II	-	Mirror Heating Element Supply Voltage	4	0.5	BN/YE	2267	IV	-
5	0.35	YE/VT	3397	III	-	Co-Driver Mirror Motor Up (+) Down (-) Control	5	0.35	YE/VT	3397	IV	-
6	0.35	L-GN/BK	3396	III	-	Co-Driver Mirror Motor Right (+) Left (-) Control	6	0.35	L-GN/BK	3396	IV	-
7-8	-	-	-	-	-	Not Occupied	7-8	-	-	-	-	-
9	1	YE/BK	117	II	-	Right Front Speaker Signal (-) (1)	9	1	YE/BK	117	IV	-
10	1	YE	200	II	-	Right Front Speaker (+) (1)	10	1	YE	200	IV	-

11-13	-	-	-	-	-	Not Occupied	11-13	-	-	-	-	-
14	0.35	BN/OG	2134	III	-	Right Front Side Impact Sensing Module Signal	14	0.35	BN/OG	2134	IV	-
15	0.35	BK/OG	6629	III	-	Right Front Side Impact Sensing Module Low Reference	15	0.35	BK/OG	6629	IV	-
16	-	-	-	-	-	Not Occupied	16	-	-	-	-	-
17	0.35	BN/VT	245	III	-	Passenger Door Lock Switch Unlock Control	17	0.35	BN/VT	245	IV	-
18	0.35	YE/VT	244	III	-	Passenger Door Lock Switch Lock Control	18	0.35	YE/VT	244	IV	-
19	0.75	BN/YE	294	II	-	Door Lock Actuator Unlock Control	19	0.75	BN/YE	294	IV	-
20	0.75	GY	295	II	-	Door Lock Actuator Lock Control	20	0.75	GY	295	IV	-
21-25	-	-	-	-	-	Not Occupied	21-25	-	-	-	-	-
26	0.35	YE	6817	III	-	LED Backlight Dimming Control	26	0.35	YE	6817	IV	-
27-32	-	-	-	-	-	Not Occupied	27-32	-	-	-	-	-
33	0.5	L-GN/YE	6134	II	-	Linear Interconnect Network Bus 3	33	0.5	L-GN/YE	6134	IV	-
34	-	-	-	-	-	Not Occupied	34	-	-	-	-	-

X610 Passenger Outside Rearview Mirror Harness to Passenger Door Harness





Connector Part Information

Harness Type: Passenger Outside Rearview Mirror

OEM Connector: 13577390

Service Connector: 13577390

Description: 10-Way F 0.64 Kaizen Series (BK)

Connector Part Information

Harness Type: Passenger Door

OEM Connector: AIT2WSB-10A-2AK

Service Connector: Service by Harness - See Part Catalog

Description: 10-Way M 0.64 Kaizen Series (BK)

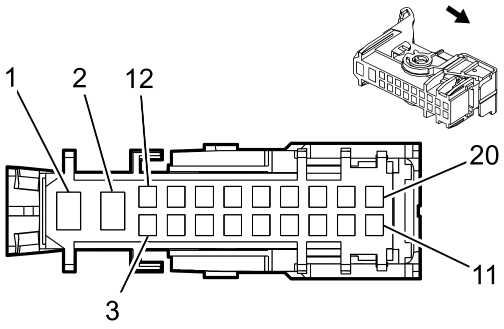
Terminal Part Information

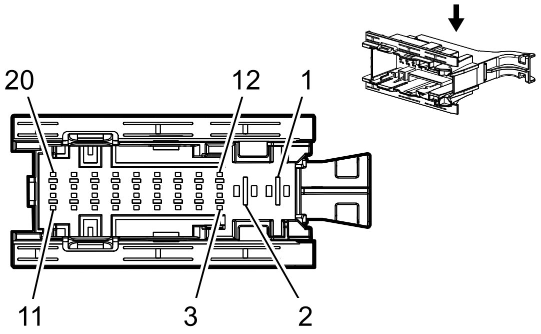
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available
II	Not Available	J-35616-64B (L-BU)	Not Available	Not Available	Not Available	Not Available	Not Available

X610 Passenger Outside Rearview Mirror Harness to Passenger Door Harness

Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
1	0.35	WH	3398	I	DL6	Co-Driver Mirror Motor Common Control	1	0.35	WH	3398	II	DL6
2	0.35	YE/VT	3397	I	DL6	Co-Driver Mirror Motor Up (+) Down (-) Control	2	0.35	YE/VT	3397	II	DL6
3	0.35	L-GN/BK	3396	I	DL6	Co-Driver Mirror Motor Right (+) Left (-) Control	3	0.35	L-GN/BK	3396	II	DL6
4	0.5	BN/YE	2267	I	DL9	Mirror Heating Element Supply Voltage	4	0.5	BN/YE	2267	II	DL9
5	0.5	BK	3650	I	DL9	Ground	5	0.5	BK	3650	II	DL9
6-10	-	-	-	-	-	Not Occupied	6-10	-	-	-	-	-

X700 Left Rear Door Harness to Body Harness (Crew Cab)





Connector Part Information

Harness Type: Left Rear Door

OEM Connector: 13678789

Service Connector: Service by Harness - See Part Catalog

Description: 20-Way F 4.8 Timer/1.5 DSQ Series (GY)

Connector Part Information

Harness Type: Body

OEM Connector: 13600495

Service Connector: 13576560

Description: 20-Way M 1.5, 5.8 Timer Series (GY)

Terminal Part Information

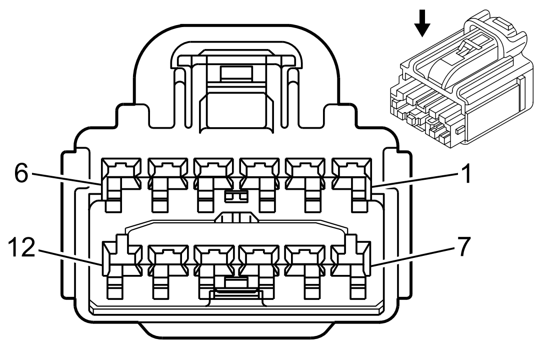
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-64B (L-BU)	Not Available	Not Available	Not Available	Not Available	Not Available
II	Not Available	J-35616-14 (GN)	Not Available	Not Available	Not Available	Not Available	Not Available
III	13575706	J-35616-42 (RD)	J-38125-36	Not Available	Not Available	Not Available	Not Available
IV	13327176	J-35616-14 (GN)	J-38125-560	964265-2	28	E	C
V	13575556	J-35616-14 (GN)	J-38125-560	964265-2	28	C	A
VI	13327174	J-35616-14 (GN)	J-38125-560	964265-2	28	E	2
VII	13327176	J-35616-14 (GN)	J-38125-560	964265-2	28	E	2

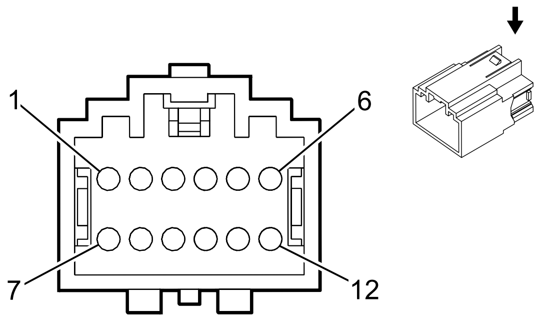
X700 Left Rear Door Harness to Body Harness (Crew Cab)

Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
1	2.5	RD/L-BU	1240	I	-	Battery Positive Voltage	1	2.5	RD/L-BU	1240	III	-
2	2.5	BK	3350	I	-	Ground	2	2.5	BK	3350	III	-
3-6	-	-	-	-	-	Not Occupied	3-6	-	-	-	-	-
7	1	L-GN	199	II	-	Left Rear Speaker (+)	7	1	L-GN	199	V	-
8	-	-	-	-	-	Not Occupied	8	-	-	-	-	-
9	0.75	WH/L-BU	3266	II	-	Child Security Lock Motor Unlock Control	9	0.75	WH/L-BU	3266	IV	-
10	0.75	BN/YE	294	II	-	Door Lock Actuator Unlock Control	10	0.75	BN/YE	294	IV	-
11	0.75	GY	295	II	-	Door Lock Actuator Lock Control	11	0.75	GY	295	IV	-

						Lock Control						
12-15	-	-	-	-	-	Not Occupied	12-15	-	-	-	-	-
16	1	L-GN/BK	116	II	-	Left Rear Speaker Signal (-)	16	1	L-GN/BK	116	V	-
17-18	-	-	-	-	-	Not Occupied	17-18	-	-	-	-	-
19	0.35	BN/WH	3269	I	-	Child Security Lock Motor Status Signal Left Rear	19	0.35	BN/WH	3269	VI	-
20	0.5	L-GN/GY	6135	I	-	Linear Interconnect Network Bus 4	20	0.5	L-GN/GY	6135	VII	-

X700 Left Rear Door Harness to Body Harness (Extended Cab)





Connector Part Information

Harness Type: Left Rear Door

OEM Connector: 7283-3442-40

Service Connector: Service by Harness - See Part Catalog

Description: 12-Way F YESC Kaizen Series (L-GY)

Connector Part Information

Harness Type: Body

OEM Connector: 7282-3442-40

Service Connector: 88988266

Description: 12-Way M 1.5 Series (L-GY)

Terminal Part Information

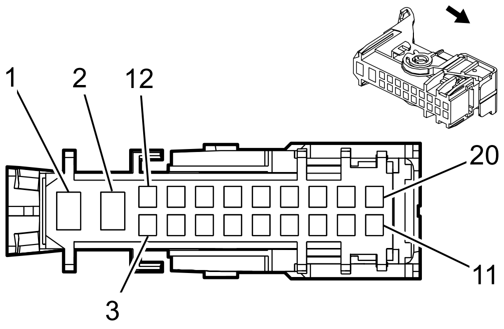
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-64B (L-BU)	Not Available	Not Available	Not Available	Not Available	Not Available
II	13575818	J-35616-3 (GY)	J-38125-553	Not Available	Not Available	Not Available	Not Available
III	19329753	J-35616-64B (LT BU)	J-38125-12A	Not Available	Not Available	Not Available	Not Available

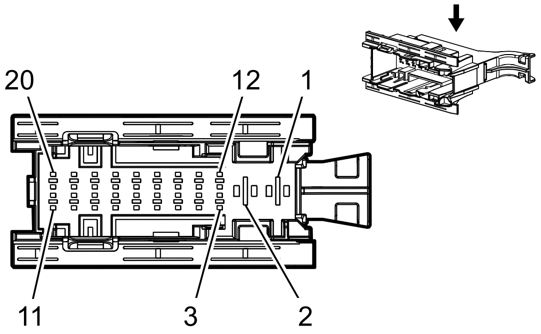
X700 Left Rear Door Harness to Body Harness (Extended Cab)

Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
1	-	-	-	-	-	Not Occupied	1	-	-	-	-	-
2	0.35	OG/YE	3481	I	-	Driver Seat Belt Anchor Pretensioner High Control	2	0.35	OG/YE	3481	III	-
3	0.35	OG/WH	3477	I	-	Driver Seat Belt Retractor Pretensioner High Control	3	0.35	OG/WH	3477	III	-
4	1	L-GN/BK	116	I	-	Left Rear Speaker Signal (-)	4	1	L-GN/BK	116	II	-
5	0.35	GY	747	I	-	Left Rear Door Ajar Switch Signal	5	0.35	GY	747	II	-
6-7	-	-	-	-	-	Not Occupied	6-7	-	-	-	-	-
8	0.35	YE/OG	3482	I	-	Driver Seat Belt Anchor Pretensioner Low Control	8	0.35	YE/OG	3482	III	-
9	0.35	GY/OG	3478	I	-	Driver Seat Belt Retractor Pretensioner Low Control	9	0.35	GY/OG	3478	III	-

10	1	L-GN	199	I	-	Left Rear Speaker (+)	10	1	L-GN	199	II	-
11	0.35	BK	3350	I	-	Ground	11	0.5	BK	3350	II	-
12	-	-	-	-	-	Not Occupied	12	-	-	-	-	-

X800 Right Rear Door Harness to Body Harness (Crew Cab)





Connector Part Information

Harness Type: Right Rear Door

OEM Connector: 13678789

Service Connector: Service by Harness - See Part Catalog

Description: 20-Way F 4.8 Timer/1.5 DSQ Series (GY)

Connector Part Information

Harness Type: Body

OEM Connector: 13600495

Service Connector: 13576560

Description: 20-Way M 1.5, 5.8 Timer Series (GY)

Terminal Part Information

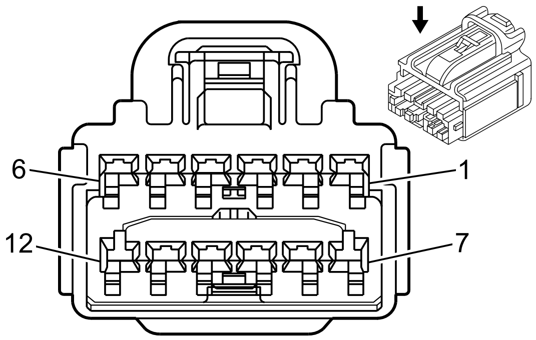
Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-64B (L-BU)	Not Available	Not Available	Not Available	Not Available	Not Available
II	Not Available	J-35616-14 (GN)	Not Available	Not Available	Not Available	Not Available	Not Available
III	13575706	J-35616-42 (RD)	J-38125-36	Not Available	Not Available	Not Available	Not Available
IV	13327176	J-35616-14 (GN)	J-38125-560	964265-2	28	E	C
V	13575556	J-35616-14 (GN)	J-38125-560	964265-2	28	C	A
VI	13327174	J-35616-14 (GN)	J-38125-560	964265-2	28	E	2
VII	13327176	J-35616-14 (GN)	J-38125-560	964265-2	28	E	2

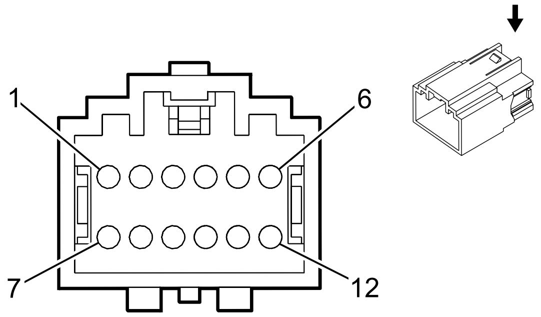
X800 Right Rear Door Harness to Body Harness (Crew Cab)

Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
1	2.5	RD/WH	1340	I	-	Battery Positive Voltage	1	2.5	RD/WH	1340	III	-
2	2.5	BK	3450	I	-	Ground	2	2.5	BK	3450	III	-
3-6	-	-	-	-	-	Not Occupied	3-6	-	-	-	-	-
7	1	WH	46	II	-	Right Rear Speaker (+)	7	1	WH	46	V	-
8	-	-	-	-	-	Not Occupied	8	-	-	-	-	-
9	0.75	WH/L-BU	3266	II	-	Child Security Lock Motor Unlock Control	9	0.75	WH/L-BU	3266	IV	-
10	0.75	BN/YE	294	II	-	Door Lock Actuator Unlock Control	10	0.75	BN/YE	294	IV	-
11	0.75	GY	295	II	-	Door Lock Actuator Lock Control	11	0.75	GY	295	IV	-

						Lock Control						
12-15	-	-	-	-	-	Not Occupied	12-15	-	-	-	-	-
16	1	L-BU/BK	115	II	-	Right Rear Speaker Signal (-)	16	1	L-BU/BK	115	V	-
17-18	-	-	-	-	-	Not Occupied	17-18	-	-	-	-	-
19	0.35	GY/BK	3268	I	-	Child Security Lock Motor Status Signal Right Rear	19	0.35	GY/BK	3268	VI	-
20	0.5	L-GN/GY	6135	I	-	Linear Interconnect Network Bus 4	20	0.5	L-GN/GY	6135	VII	-

X800 Right Rear Door Harness to Body Harness (Extended Cab)





Connector Part Information

Harness Type: Right Rear Door

OEM Connector: 7283-3442-40

Service Connector: Service by Harness - See Part Catalog

Description: 12-Way F YESC Kaizen Series (L-GY)

Connector Part Information

Harness Type: Body

OEM Connector: 7282-3442-40

Service Connector: 88988266

Description: 12-Way M 1.5 Series (L-GY)

Terminal Part Information

Terminal Type ID	Terminated Lead	Diagnostic Test Probe	Terminal Removal Tool	Service Terminal	Tray	Core Crimp	Insulation Crimp
I	Not Available	J-35616-64B (L-BU)	Not Available	Not Available	Not Available	Not Available	Not Available
II	13575818	J-35616-3 (GY)	J-38125-553	Not Available	Not Available	Not Available	Not Available
III	19329753	J-35616-64B (LT BU)	J-38125-12A	Not Available	Not Available	Not Available	Not Available

X800 Right Rear Door Harness to Body Harness (Extended Cab)

Pin	Size	Color	Circuit	Terminal Type ID	Option	Function	Pin	Size	Color	Circuit	Terminal Type ID	Option
1	-	-	-	-	-	Not Occupied	1	-	-	-	-	-
2	0.35	OG/BN	3479	I	-	Passenger Seat Belt Anchor Pretensioner High Control	2	0.35	OG/BN	3479	III	-
3	0.35	OG/L-GN	3475	I	-	Passenger Seat Belt Retractor Pretensioner High Control	3	0.35	OG/L-GN	3475	III	-
4	1	L-BU/BK	115	I	-	Right Rear Speaker Signal (-)	4	1	L-BU/BK	115	II	-
5	0.35	GY	748	I	-	Right Rear Door Ajar Switch Signal	5	0.35	GY	748	II	-
6-7	-	-	-	-	-	Not Occupied	6-7	-	-	-	-	-
8	0.35	GY/OG	3480	I	-	Driver Seat Belt Anchor Pretensioner Low Control	8	0.35	GY/OG	3480	III	-
9	0.35	WH/OG	3476	I	-	Passenger Seat Belt Anchor Pretensioner Low Control	9	0.35	WH/OG	3476	III	-

10	1	WH	46	I	-	Right Rear Speaker (+)	10	1	WH	46	II	-
11	0.35	BK	3450	I	-	Ground	11	0.5	BK	3450	II	-
12	-	-	-	-	-	Not Occupied	12	-	-	-	-	-

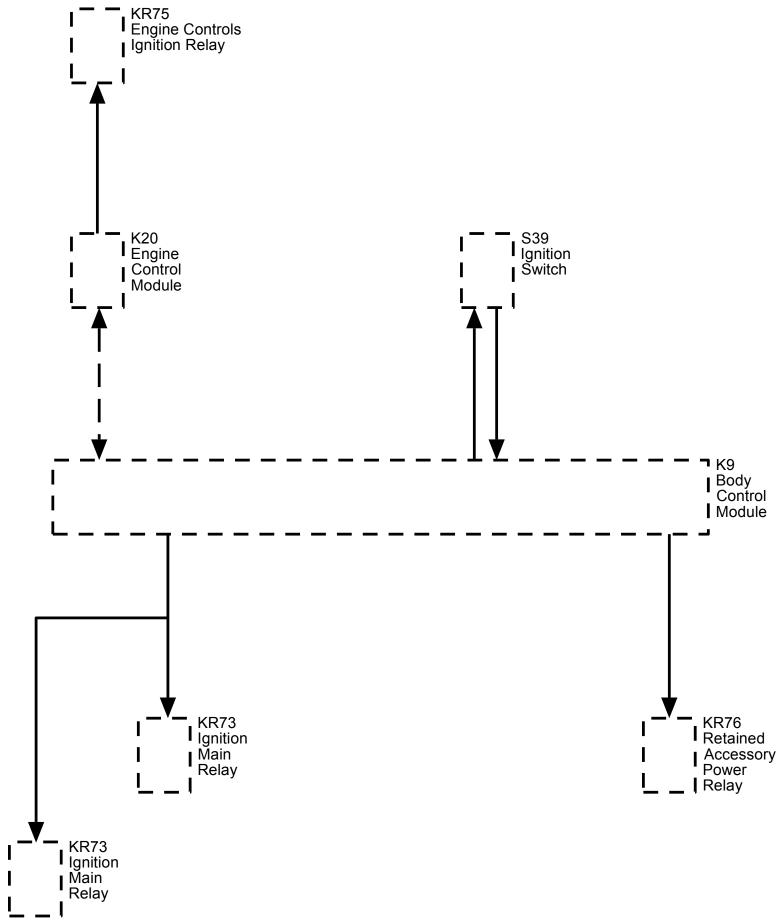
Description and Operation

Electronic Park Lock Description and Operation

If the vehicle is equipped with automatic transmission and a floor mounted console gear shift, it has an electronic park lock system (EPL). The EPL system purpose is to prevent the ignition key from being turned to the OFF position when the transmission is in any position other than PARK and the vehicle may still be moving. The EPL system consists of an ignition lock cylinder solenoid, and a park position switch that is located in the A/T shift lock control switch. The ignition lock cylinder solenoid contains a pin that is spring loaded to mechanically prevent the ignition key cylinder from being turned to the lock position when the vehicle transmission is not in the PARK position. If vehicle power is lost, and/or the transmission is not in the Park position the operator will not be able to turn the ignition key to the lock position and will not be able to remove the ignition key from the column.

Power Mode Description and Operation

Power Moding D&O Block Diagram


KR75 Engine Controls Ignition Relay
K20 Engine Control Module
S39 Ignition Switch
K9 Body Control Module
KR73 Ignition Main Relay
KR76 Retained Accessory Power Relay
KR73 Ignition Main Relay

Serial Data Power Mode Master

Power to many of this vehicles circuits is controlled by the module that is designated the power mode master. This vehicles power mode master is the body control module (BCM). The BCM has multiple B+ circuits that feed into it. Each of those circuits are partitioned within the controller to drive certain outputs of the vehicle's body functions. An open or short in any one of the B+ circuits may induce multiple codes/or a section of non-functionality within the BCM with the rest of the BCM functioning normally. In this case it is useful to refer to the power distribution schematics to determine if the non-functional partition of the controller shares a common B+ circuit. The ignition switch is a low current switch with multiple discrete ignition switch signals to the power mode master for determination of the power mode that will be sent over the serial data circuits to the other modules that need this information. The power mode master will also activate relays and other direct outputs of the power mode master as needed. The power mode master determines which power mode (Off, Accessory, Run, Crank Request) is required, and reports this information to other modules via serial data. Modules which have switched voltage inputs may operate in a default mode if the power mode serial data message does not match what the individual module can see from its own connections.

The power mode master receives ignition switch or ignition mode switch signals to identify the operators desired power mode. The Power Mode Parameter tables below illustrate the correct state of these input parameters (circuits) in correspondence to the ignition switch position or ignition mode switch with the transmitter to vehicle range:

Power Mode Parameters

Ignition Switch Position	**Power Mode Transmitted**	**Ign. Off/Run/Crank (Off/Run Crank Voltage Circuit)**	**Ignition Accessory/Run (Accessory Voltage Circuit)**	**Ignition Run/Crank (Ignition 1 Voltage Circuit)**
Off Key Out	Off	Key Out / ACC	Inactive	Inactive
Off Key IN	Off	Key In / Off	Inactive	Inactive
Accessory	Accessory	Key Out / ACC	Active	Inactive

Run	Run	Run	Active	Active
Start	Crank Request	Crank	Inactive	Active

Relay Controlled Power Mode

The BCM uses the discrete ignition switch inputs Off/Run/Crank Voltage, Accessory Voltage, and Ignition 1 Voltage, to distinguish the correct power mode. The BCM, after determining the desired power mode, will activate the appropriate relays for that power mode.

The accessory relay remains on for a timed period after the Ignition key is removed. Refer to Retained Accessory Power Description and Operation for more information on the retained accessory power function.

Battery Saver Mode (Transport Mode)

Battery saver mode (transport mode) reduces the parasitic load of some modules during overseas shipment or during vehicle storage conditions. This improves the drain time on the battery (up to 70 days without the battery going dead). When a vehicle is in transport/storage, some features may have reduced functionality while in the battery saver mode, such as disabling keyless entry, afterblow, and content theft features. Battery saver mode is initiated by turning on the hazard flashers, applying the brake pedal, and then turning the ignition key to the start position or pushing the ignition mode switch with the foot on the brake for greater than 15 seconds. The mode is disengaged by repeating the previous process. The driver information center (if equipped) will display Transport Mode is On when battery saver mode is enabled and Transport Mode is Off when battery saver mode is disabled. For vehicles not equipped with a driver information center, the battery indicator light will constantly flash on the Instrument Cluster when battery saver mode is enabled. This feature can be used as many times as necessary if the vehicle is to be stored for an extended period of time.

BCM Awake/Sleep States

The BCM is able to control or perform all of the BCM functions in the awake state. The BCM enters the sleep state when active control or normal monitoring of system functions has stopped and a time limit has passed. The BCM must detect certain wake-up inputs before entering the awake state. The BCM monitors for these inputs during the sleep state.

The BCM will enter the awake state if any of the following wake-up inputs are detected:

- Activity on the serial data line
- Detection of a battery reconnect
- Any door open signal
- Headlamps ON
- Key-in-ignition
- Ignition ON
- Park lamps ON
- Keyless entry or remote start message

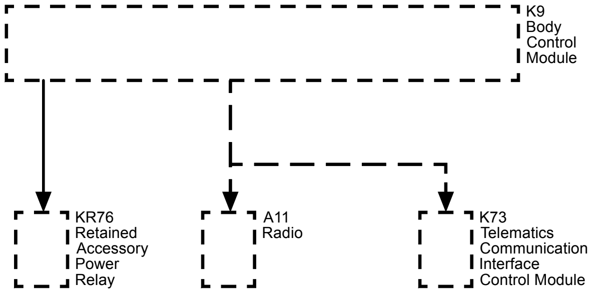
The BCM will enter a sleep state when all of the following conditions exist:

- The ignition switch is OFF, key out.
- Ignition OFF, transmitter is out of range
- No activity exists on the serial data line.
- No outputs are commanded.
- No delay timers are actively counting.
- No wake-up inputs are present.

If all these conditions are met, the BCM will enter a low power or sleep condition.

Retained Accessory Power Description and Operation

RAP Description and Operation Block Diagram



Retained Accessory Power

The body control module (BCM) monitors the ignition switch position, battery condition, and each door ajar/open switch status to determine whether the retained accessory power should be initiated or terminated. Retained accessory power is controlled by two different methods; relay control and serial data. Some modules receive a retained accessory power message from the BCM over the serial data circuits. Serial data controlled retained accessory power is deactivated as required by their modules retained accessory power mode operation. Other subsystems are activated directly by the BCM through a relay. Components and systems that are active in retained accessory power are also activated anytime the ignition is any position other than OFF regardless of the door switch signals.

Relay Controlled Retained Accessory Power

The BCM keeps the relay energized during all power modes, except Off-Awake and Crank. The relay is also energized for approximately 10 minutes after shutting the ignition OFF and removing the key, providing no door is opened.

Relay controlled retained accessory power will end when one of the following conditions is met:

- The BCM receives an input from any door ajar or open switch indicating the opening of any door after the ignition key is out of the ignition.

  Note: If the BCM is receiving any door ajar or open signal from those switches when the ignition key is turned OFF, retained accessory power will not initiate.

- The BCM internal timer for the retained accessory power expires after approximately 10 minutes.
- The BCM detects a decrease in battery capacity below a prescribed limit.

Systems powered by the retained accessory power relay during the retained accessory power mode are as follows:

Note: The vehicle may not be equipped with all components as listed below.

- Accessory Power Receptacle
- Cigarette Lighter Receptacle

- Window Switches
- Sunroof Control Module
- Sunroof Switch
- Mobile Device Wireless Charger Module
- Mobile Telephone Control Module
- Traffic Data Receiver
- Transmission Shift Lever Position Indicator (w/floor mounted console gear shift)
- Seat Heating Control Module

Serial Data Controlled Retained Accessory Power

Retained accessory power systems controlled by serial data are as follows:

Radio

Radio retained accessory power activation / termination is the same as relay operation with one exception; the only door switch that will turn off the radio during retained accessory power is the driver door open switch.

Vehicle Communication Interface Module (VCIM) (Onstar®) (If Equipped)

VCIM RAP activation/termination is the same as radio operation with 1 exception; if there is an active call when the ignition key is turned off the VCIM will remain in RAP mode, and keep the radio in RAP mode until the call is terminated.

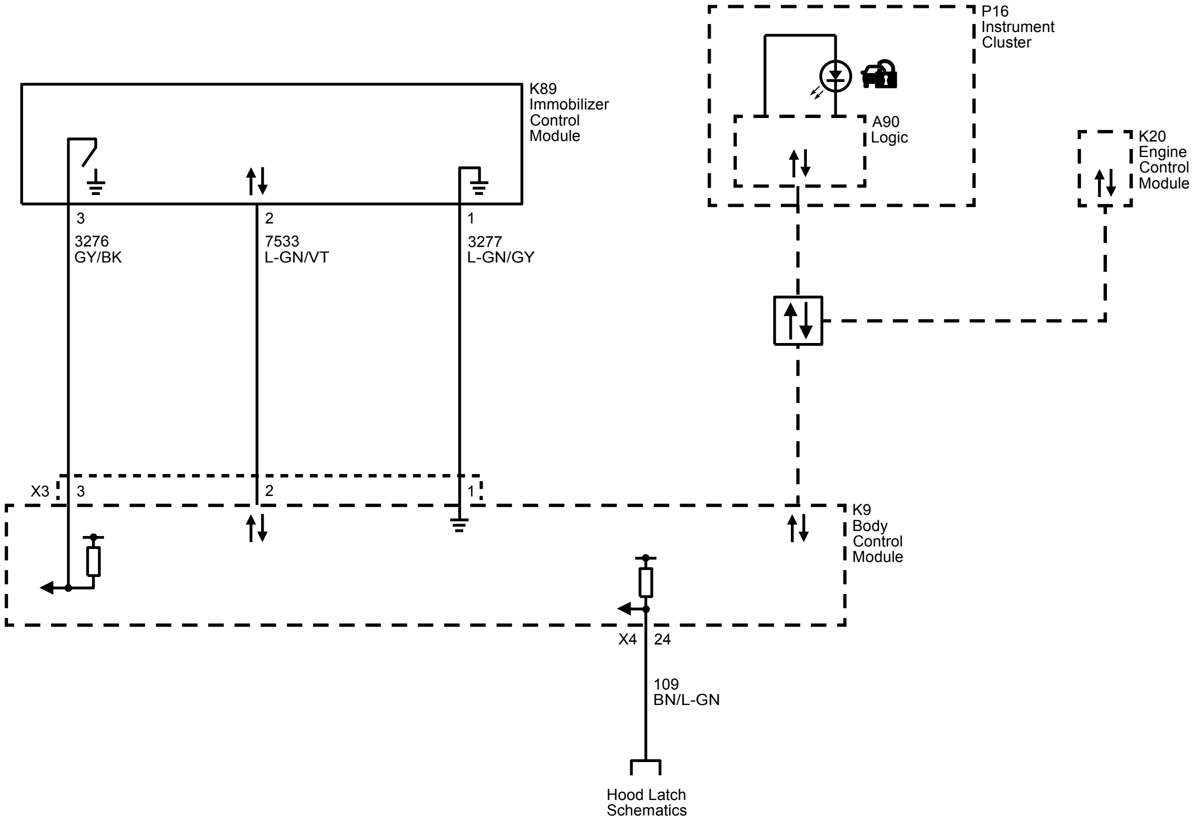
Safety and Security

Immobilizer

Schematic and Routing Diagrams

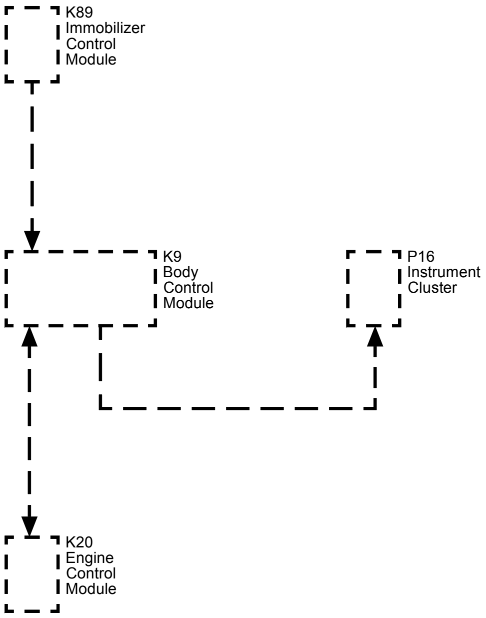
Immobilizer Schematics

Immobilizer


P16
Instrument
Cluster
A90
Logic
K89
Immobilizer
Control
Module
K20
Engine
Control
Module
3
3276
GY/BK
2
7533
L-GN/VT
1
3277
L-GN/GY
X3
3
2
1
K9
Body
Control
Module
X4
24
109
BN/L-GN
Hood Latch
Schematics

Description and Operation

Immobilizer Description and Operation



The immobilizer system functions are provided by the body control module (BCM) and the engine control module (ECM), as well as any control modules which store and report the environment identifier.

When an ignition key is inserted into the ignition lock cylinder and the ignition is switched ON, the transponder in the key is energized by the immobilizer coil surrounding the ignition lock cylinder. This immobilizer coil is part of the immobilizer control module. The transponder transmits a signal that contains its unique value, which is received by the BCM through the immobilizer coil. The BCM then compares this value to a value stored in memory. The BCM also monitors various control modules to determine if the stored environment identifiers match.

If both the environment identifier and the value received from the transponder match, the BCM will send the prerelease password via serial data to the ECM. If the encrypted code's unique value is incorrect or the environment identifier does not match, the BCM will send the start disable message to the ECM.

When the ECM receives the BCM prerelease password, the ECM will challenge the password. The ECM sends this challenge to the BCM via serial data. Both the ECM and BCM perform a calculation on this challenge. If the BCM calculated response to the challenge equals the calculation performed by the ECM, the ECM will allow vehicle starting.

The components of the theft system are as follows:

- BCM
- ECM
- Immobilizer control module
- Ignition key
- Security indicator
- Various control modules which store and report the environment identifier

Body Control Module (BCM)

The immobilizer system is an integral part of the BCM and is controlled internally within the BCM. The BCM can learn up to 8 keys (transponder values).

The BCM uses the following inputs:

- Environment identifier exchange with various modules
- Encrypted code from the vehicle key, received by the immobilizer control module

The BCM uses the following outputs:

- Prerelease password communication with ECM
- Challenge/response with ECM

When an ignition key is inserted into the ignition lock cylinder and the ignition is switched ON, the encrypted code in the key is energized by the immobilizer control module surrounding the ignition lock cylinder. The energized transponder transmits a signal that contains its unique value, which is received by the BCM. The BCM then compares this value to the learned key code stored in memory. The BCM then performs one of the following functions:

- If the encrypted code value matches the values stored in the BCM memory, the BCM will send the prerelease password to the ECM via serial data.
- If the encrypted code unique value does not match the value stored in the BCM, the BCM will send the start disable message to the ECM via serial data.
- If the BCM is unable to measure the ignition key encrypted code value, the BCM will not send any messages to the ECM.

Engine Control Module (ECM)

When the ECM receives the BCM prerelease password, the ECM will challenge the password. The ECM sends this challenge to the BCM via the serial data circuit. Both the ECM and BCM perform a calculation on this challenge. If the calculated response from the BCM equals the calculation performed by the ECM, the ECM will allow vehicle starting.

The ECM will disable vehicle starting if any of the following immobilization conditions occur:

- The prerelease password is invalid.
- The start disable password is sent by the BCM.
- No passwords are received. There is no communication with the BCM.
- The BCM calculated response to the challenge does not equal the calculation performed by the ECM.

Immobilizer Control Module

The immobilizer control module contains an immobilizer coil which surrounds the ignition cylinder. The coil passively powers the transponder located in the ignition key when the key is in the ignition. When powered, the key transmits its unique value to the immobilizer control module, which is then relayed to the BCM via a discrete serial data circuit. The immobilizer control module also receives B+ and ground from the BCM.

The immobilizer control module is used to:

1. Learn keys
2. To start the vehicle

Ignition Key

Each ignition key contains a transponder with a unique encrypted value. The transponder's encrypted value is fixed and unable to be changed. The immobilizer system uses the ignition key transponder value to determine if a valid ignition key is being used to start the vehicle.

Environment Identifier

Various modules throughout the vehicle learn a specific environment identifier during the module programming process. The environment identifier is learned by each individual module and matches the environment identifier stored in the BCM. Prior to starting after a battery disconnect, each of the modules which store a environment identifier will compare their identifier to that of the identifier stored in the BCM. If all the identifiers match, the engine starting process will continue. If the environment identifiers do not match, engine starting will be disabled.

Security Indicator

The BCM will command the instrument cluster to illuminate the security indicator when the ignition is in the ON position to indicate a fault has occurred within the immobilizer system and when the engine starting is disabled.

Remote Vehicle Speed Limiting Description and Operation

Certain vehicles equipped with OnStar® now have an additional feature that allows for remote limiting of the vehicle's speed. This OnStar® feature is called Stolen Vehicle Slow-Down and is now part of the OnStar® Stolen Vehicle Assistance service. This feature, when used in conjunction with local law enforcement and strict guidelines at the OnStar® Call Center, will slow the vehicle by interacting with the engine control system.

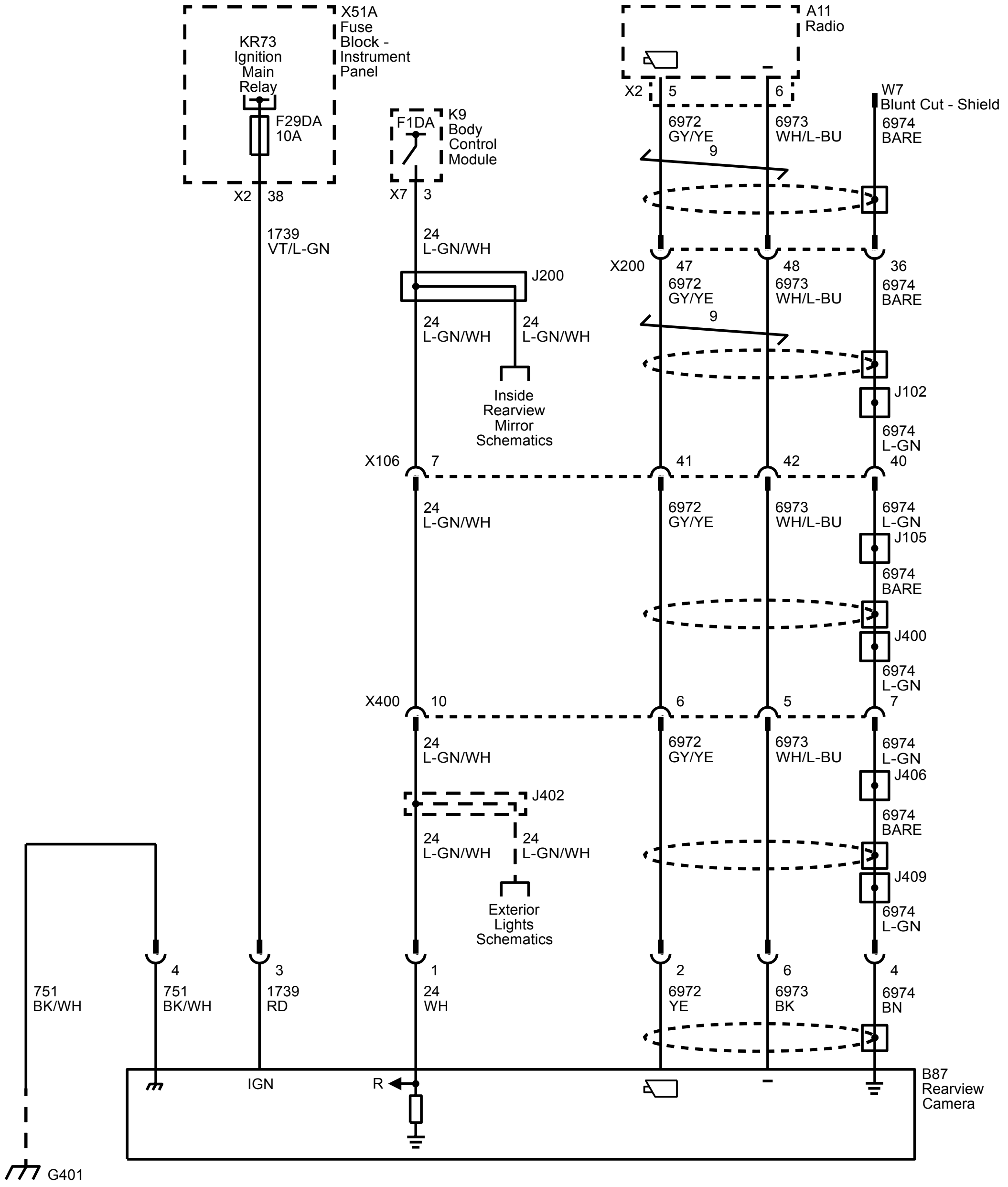
When the engine control system receives a valid request from the OnStar® telematics communications interface module, it will enter into a reduced engine power/vehicle speed limiting mode, which will decelerate the vehicle. Once the request is active the engine control module begins reducing engine torque to match requested vehicle speed and a REDUCED ENGINE POWER indication is displayed. No DTCs will be set during this process.

Object Detection

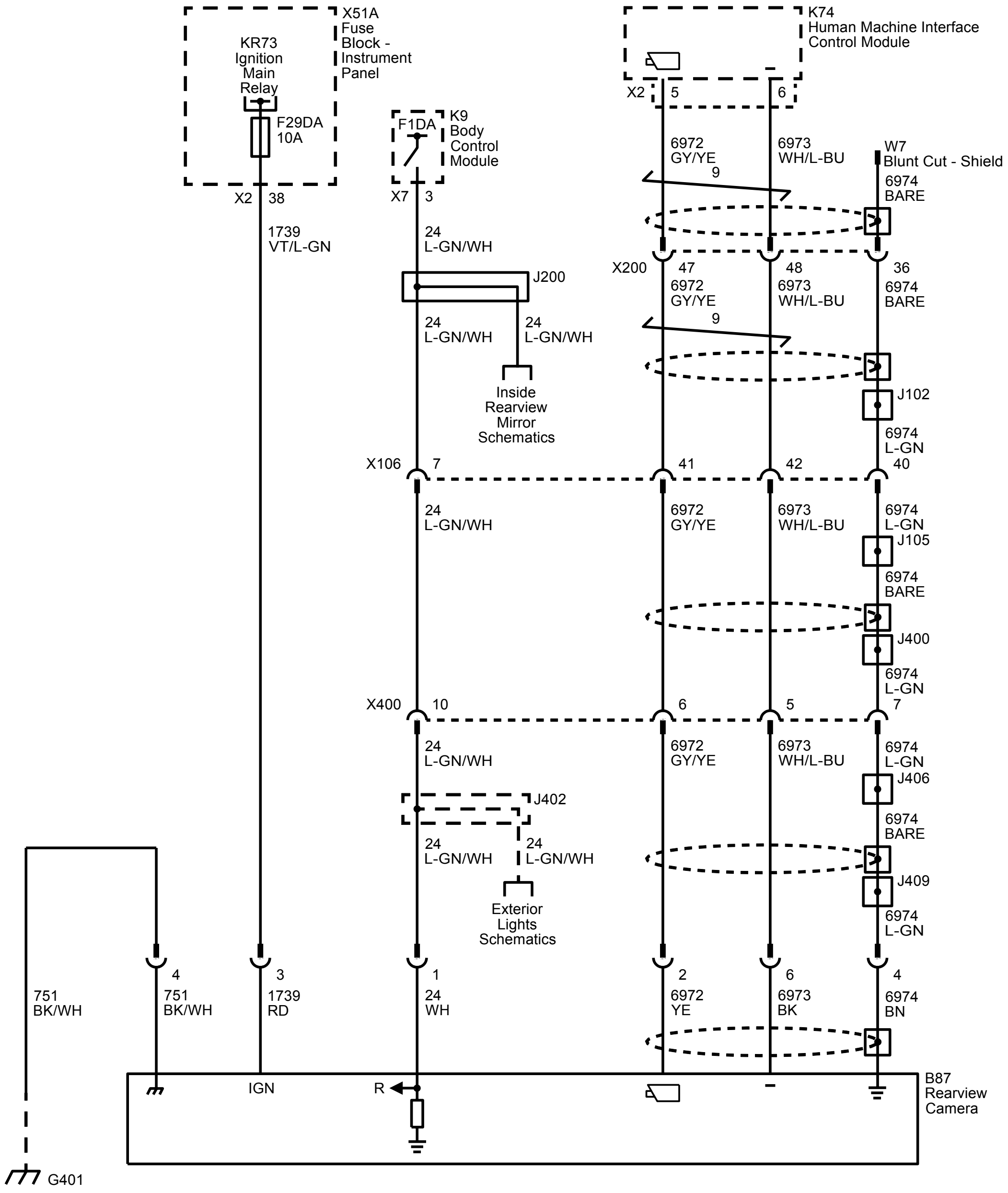
Schematic and Routing Diagrams

Object Detection Schematics

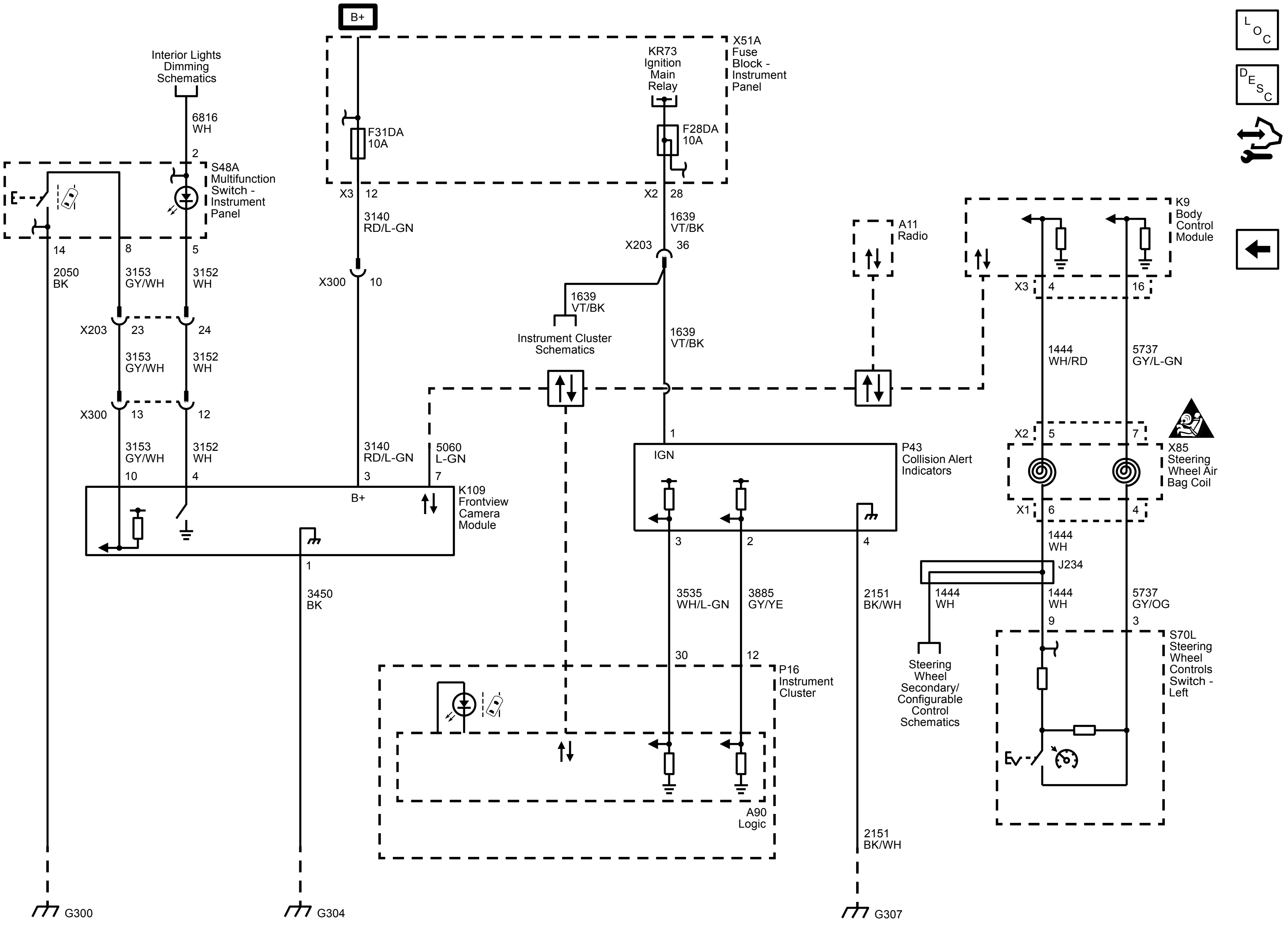
Rear Camera (IO3)


X51A Fuse Block - Instrument Panel
KR73 Ignition Main Relay
F29DA 10A
X2
38
1739 VT/L-GN
K9 Body Control Module
F1DA
X7
3
24 L-GN/WH
J200
24 L-GN/WH
24 L-GN/WH
Inside Rearview Mirror Schematics
A11 Radio
X2
5
6
6972 GY/YE
9
6973 WH/L-BU
W7 Blunt Cut - Shield
6974 BARE
X200
47
48
36
6972 GY/YE
6973 WH/L-BU
6974 BARE
9
J102
6974 L-GN
40
X106
7
41
42
24 L-GN/WH
6972 GY/YE
6973 WH/L-BU
6974 L-GN
J105
6974 BARE
J400
6974 L-GN
7
X400
10
6
5
24 L-GN/WH
6972 GY/YE
6973 WH/L-BU
6974 L-GN
J406
J402
6974 BARE
24 L-GN/WH
24 L-GN/WH
Exterior Lights Schematics
J409
6974 L-GN
751 BK/WH
4
751 BK/WH
3
1739 RD
1
24 WH
2
6972 YE
6
6973 BK
4
6974 BN
IGN
R
B87 Rearview Camera
G401

Rear Camera (IO4/IO5/IO6)


X51A
Fuse
Block -
Instrument
Panel
KR73
Ignition
Main
Relay
F29DA
10A
X2
38
1739
VT/L-GN
K9
Body
Control
Module
F1DA
X7
3
24
L-GN/WH
J200
24
L-GN/WH
24
L-GN/WH
Inside
Rearview
Mirror
Schematics
K74
Human Machine Interface
Control Module
X2
5
6
6972
GY/YE
9
6973
WH/L-BU
W7
Blunt Cut - Shield
6974
BARE
X200
47
6972
GY/YE
9
48
6973
WH/L-BU
36
6974
BARE
J102
6974
L-GN
40
X106
7
41
42
24
L-GN/WH
6972
GY/YE
6973
WH/L-BU
6974
L-GN
J105
6974
BARE
J400
6974
L-GN
7
X400
10
6
5
24
L-GN/WH
6972
GY/YE
6973
WH/L-BU
6974
L-GN
J406
6974
BARE
J402
24
L-GN/WH
24
L-GN/WH
Exterior
Lights
Schematics
J409
6974
L-GN
751
BK/WH
4
751
BK/WH
3
1739
RD
1
24
WH
2
6972
YE
6
6973
BK
4
6974
BN
IGN
R
B87
Rearview
Camera
G401

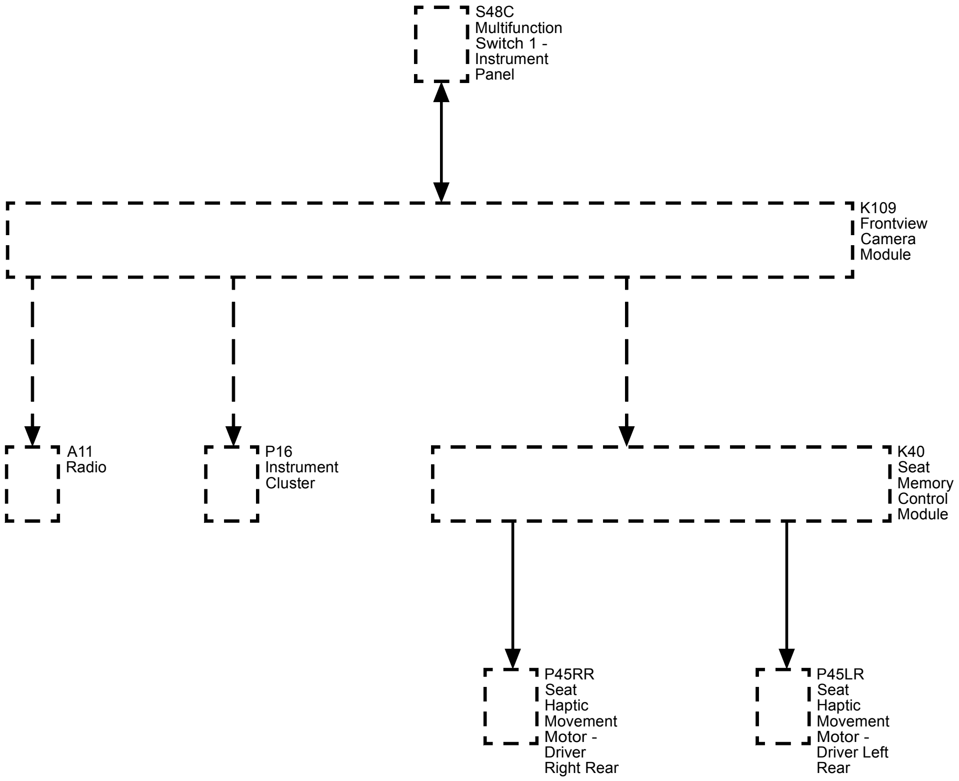
Lane Departure Warning and Forward Collision Alert (UFL/UEU)


B+
Interior Lights Dimming Schematics
6816
WH
2
S48A Multifunction Switch - Instrument Panel
14
8
5
2050
BK
3153
GY/WH
3152
WH
X203
23
24
X300
13
12
10
4
K109 Frontview Camera Module
1
3450
BK
G300
G304
X51A Fuse Block - Instrument Panel
KR73 Ignition Main Relay
F31DA
10A
F28DA
10A
X3
12
X2
28
3140
RD/L-GN
1639
VT/BK
X203
36
X300
10
1639
VT/BK
Instrument Cluster Schematics
3140
RD/L-GN
5060
L-GN
3
7
B+
IGN
P43 Collision Alert Indicators
3
2
4
3535
WH/L-GN
3885
GY/YE
2151
BK/WH
30
12
P16 Instrument Cluster
A90 Logic
G307
A11 Radio
K9 Body Control Module
X3
4
16
1444
WH/RD
5737
GY/L-GN
X2
5
7
X85 Steering Wheel Air Bag Coil
X1
6
4
1444
WH
J234
1444
WH
1444
WH
5737
GY/OG
9
3
Steering Wheel Secondary/ Configurable Control Schematics
S70L Steering Wheel Controls Switch - Left
L O C
D E S C

Description and Operation

Object Detection Description and Operation (with lane departure warning, UFL)

Lane Departure Warning Block Diagram


S48C
Multifunction
Switch 1 -
Instrument
Panel
K109
Frontview
Camera
Module
A11
Radio
P16
Instrument
Cluster
K40
Seat
Memory
Control
Module
P45RR
Seat
Haptic
Movement
Motor -
Driver
Right Rear
P45LR
Seat
Haptic
Movement
Motor -
Driver Left
Rear

The lane departure warning system is a convenience feature of the front view camera that issues a warning when the system detects that the vehicle has unintentionally crossed a lane marking. The front view camera is located behind the windshield, looking out at the road ahead and detecting any lane markings. When the vehicle unintentionally leaves a detected lane, a visual and audible or haptic (pulses the seat, if equipped) alerts are given to the driver. The visual alert cannot be changed, but the driver can select between audible or haptic alerts in the vehicle personalization menus. See the user's manual for more detailed information on vehicle personalization.

The lane departure warning system is made up of the following components:

- Front view camera module
- Lane departure warning switch / control indicator
- Instrument cluster / Vehicle Direction Display
- Radio
- Safety Alert Seat, if equipped

Front View Camera Module

The camera detects visual queues such as lane markings. When it is determined that the vehicle has unintentionally moved outside of the lane, visual, and audible or haptic warning is given to the driver. The front view camera module receives an input from the lane departure warning switch and controls the lane departure warning switch indicator output. The front view camera module also communicates via serial data with the instrument cluster, radio, and memory seat module to request visual, and audible or haptic alerts.

Lane Departure Warning Switch

The lane departure warning switch provides an input to the front view camera module to turn the lane departure warning system ON and OFF. The front view camera module provides a signal voltage to the normally open momentary switch. When the switch is pressed, the signal circuit is pulled to ground, indicating to the front view camera module that the system has been requested to turn ON or OFF. The lane departure warning switch also contains the lane departure warning switch indicator, which is controlled by the front view camera module to indicate the ON and OFF status of the lane departure warning system. When the system has been enabled by the lane departure warning switch, the front view camera module applies ground to the switch indicator and illuminates the LED. The location of the lane departure warning switch can vary with different vehicles. For the exact location please refer to the user's manual.

Instrument Cluster

The vehicle direction display contains green and amber lane departure warning indicators. These indicate to the driver the current status of the lane departure warning system and are controlled via serial data by the front view camera module. When the vehicle speed is above 56 km/h (35 MPH) and the system has detected the required lane markings and is ready to assist, the green indicator will be illuminated on the vehicle direction display. If the vehicle has unintentionally left the lane, the amber indicator will flash.

Radio

The radio controls the audible alert for the lane departure warning. If the vehicle has unintentionally left the lane, the radio will command three beeps as an audible alert to the driver.

Safety Alert Seat

The memory seat module controls the haptic alert provided by the seats. If the vehicle has unintentionally left the lane, the memory seat module will command three pulses to the left or right side of the seat, depending on the lane departure direction.

Lane Departure Warning Operation

System operation can be described by the following modes:

- Off State: The system has been turned off by the driver using the lane departure warning switch. The lane departure warning indicator will not be illuminated.
- Not Ready To Assist: The system is enabled and the lane departure warning indicator is illuminated, but not ready to assist when any of the following conditions is true:
  - Vehicle speed is less than 56 km/h (35 MPH). The system is designed to function at speeds greater than 56 km/h (35 MPH).
  - The system cannot detect lane markings. This may be because there are no lane markings, as on a country road or that the lane markings cannot be determined due to snow, rain, or other driving conditions.
  - The windshield area in front of the camera or the camera lens is blocked by fog, dirt, damage to the windshield or other elements that may prevent the camera from detecting lane markings.
- Ready To Assist: The system is enabled and ready to warn of the unintentional lane crossing. The system is ready to assist when the green lane departure warning indicator is illuminated on the vehicle direction display.

Lane Crossing Alerts

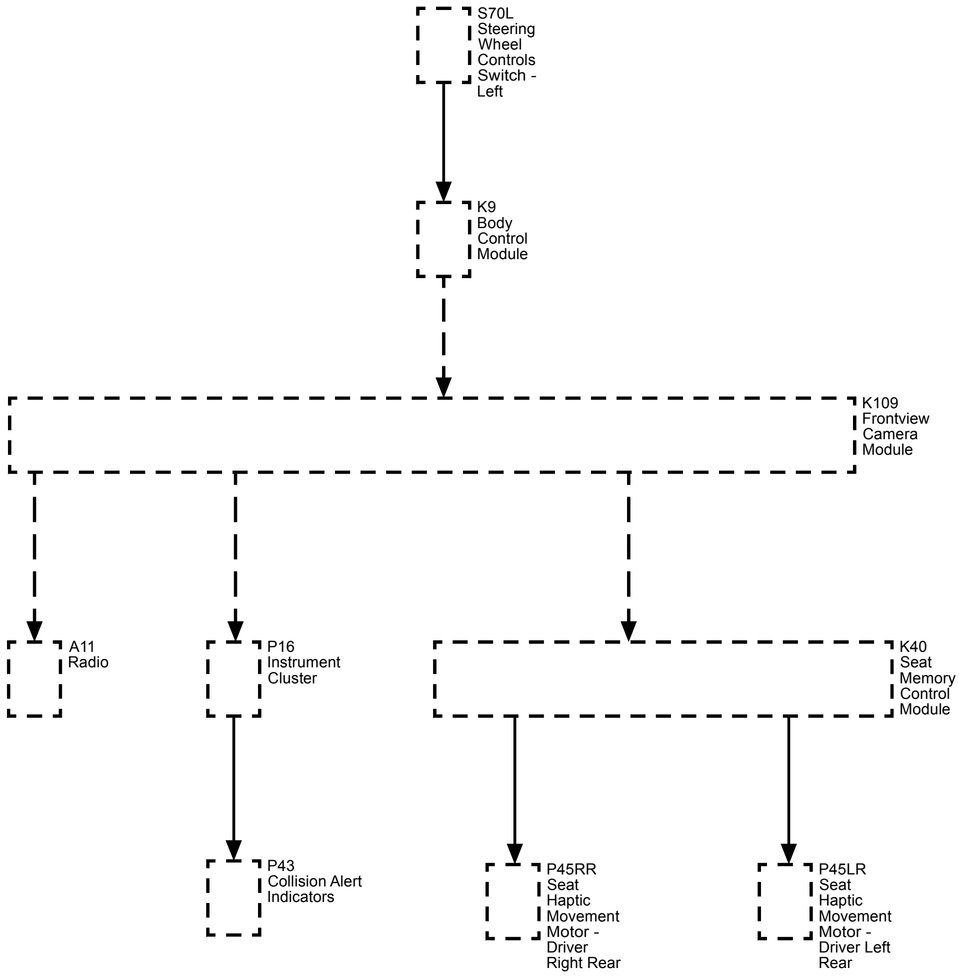
- When one of the following conditions are met, the system will not give alerts:
  - The correct turn signal is activated. An activated turn signal is interpreted as an intentional lane crossing.
  - The operator makes an intentional steering maneuver.
  - The operator makes an intentional accelerating maneuver.
  - The operator makes an intentional braking maneuver.
- Lane crossing alert consists of the following:
  - The amber lane departure warning indicator will flash.
  - Three chimes are activated through the radio.
  - or if equipped, three pulses to the left or right side of the seat.

Lane Departure Warning System Driver Information Center Messages

The front view camera module can command the driver information center to display the various messages to alert the driver of a system concern or status information. For detailed information about the possible messages please refer to the user's manual.

Object Detection Description and Operation (with forward collision alert, UEU)

Forward Collision Alert Block Diagram


S70L Steering Wheel Controls Switch - Left
K9 Body Control Module
K109 Frontview Camera Module
A11 Radio
P16 Instrument Cluster
K40 Seat Memory Control Module
P43 Collision Alert Indicators
P45RR Seat Haptic Movement Motor - Driver Right Rear
P45LR Seat Haptic Movement Motor - Driver Left Rear

The forward collision alert system is a convenience feature of the front view camera that issues a warning to the driver when a potential collision risk exists. The front view camera is located behind the windshield, looking out at the road ahead and detecting vehicles directly ahead, within a distance of approximately 60 meters (197 ft). The forward collision alert system operates at speeds above 40 kph (25 mph). When the system detects a vehicle in the path ahead, the green vehicle ahead indicator in the vehicle direction display is illuminated. When approaching another vehicle too rapidly, the collision alert symbol will flash in the head-up display (if equipped) or a series of red LEDs in the vehicle direction display. Simultaneously an audible alert can sound or the Safety Alert Seat pulses. The visual alert cannot be changed, but the driver can select between audible or haptic alerts in the vehicle personalization menus. The forward collision alert system can also be turned on or off through the vehicle personalization menus. See the user’s manual for more detailed information on vehicle personalization.

Forward collision alert does not warn the driver of any objects that are not detected as a vehicle, like e.g. pedestrians, animals, signs, guard rails, bridges, construction barrels or other stationary or slow moving objects. The forward collision alert timing sensitivity to control the distance to the vehicle ahead can be set using the forward collision alert switch in the left steering wheel controls.

In some cases the camera may detect a vehicle that is not in the path ahead, or the system may occasionally provide unrealistic alerts. This could respond to a turning vehicle ahead, guard rails, traffic signs, or other stationary objects. This is normal operation, the vehicle does not need service. Forward collision alert may sometimes set unnecessary alerts to turning vehicles, vehicles in other lanes, objects that are not vehicles, or shadows. These alerts are normal operation and the vehicle does not need service.

The forward collision alert system is made up of the following components:

- Front view camera module
- Forward collision alert switch
- Instrument cluster / Vehicle direction display
- Radio
- Memory Seat Module and Safety Alert Seat, if equipped

Front View Camera Module

The camera detects vehicles in front of the host vehicle. The front view camera module requests the green vehicle ahead alert indicator in the vehicle direction display ON via serial data when the front view camera system has detected a vehicle in the driving path ahead. The front view camera module also communicates via serial data with the driver information center, radio, and memory seat module to request visual, and audible or haptic alerts.

Forward Collision Alert Switch

The forward collision alert switch provides an input to the front view camera module to select the alert timing sensitivity when approaching another vehicle too rapidly. The front view camera module provides a signal voltage to the normally open switch. When the switch is pressed, the signal circuit is pulled to ground, indicating to the front view camera module that the system has been requested to change the alert timing sensitivity. The first button press shows the current alert timing setting on the driver information center. With every button press, the alert timing sensitivity is changed. The current alert timing setting will be maintained until it is changed. The preset alert timing setting is displayed in the top line of the driver information center. The position of the forward collision alert switch can vary with different vehicles. For the exact position of the switch and possible user settings, please refer to the user's manual.

Instrument Cluster

The Vehicle direction display contains the green vehicle ahead indicator, which indicates to the driver that the Front View Camera system has detected a vehicle in the driving path ahead and is controlled via serial data. When approaching another vehicle too rapidly, the collision alert symbol will flash in the Vehicle direction display. The red Front collision alert display will stay continuously illuminated if the vehicle ahead remains much too close. The vehicle ahead indicator will display amber when following too close to the vehicle ahead.

Radio

The radio controls the audible alert for the forward collision alert system. If the host vehicle is approaching another vehicle too rapidly, the radio will command eight beeps as an audible alert to the driver.

Safety Alert Seat

The memory seat module controls the haptic alert provided by the seats. If the vehicle is approaching another vehicle too quickly, the memory seat module will command five pulses to both sides of the seat.

Forward Collision Alert System Driver Information Center Messages

The front view camera module can command the driver information center to display the various messages to alert the driver of a system concern or status information. For detailed information about the possible messages please refer to the user's manual.

Object Detection Description and Operation (with rearview camera, UVC)

Rear Vision Camera System Operation

The rear vision camera system consists of a video camera/module located at the rear of the vehicle and the infotainment display.

When the transmission is placed into REVERSE, a 12 volt signal is sent to the rear vision camera by the body control module (BCM). This signal indicates to the camera that the vehicle is in reverse and image display is requested. The rear vision camera receives ignition voltage and a constant ground to power the camera. Video signal + and video signal – circuits carry the video image from the rear vision camera to the infotainment display. Additionally, the video signal circuits are shielded to prevent any interference which may lead to a loss of video signal resolution and a degraded video image. The shield is provided a ground path by the rear vision camera.

The following conditions may cause a degraded rear vision camera image:

- Ice, snow, or mud has built up on the rear vision camera
- Dark conditions
- Extreme light conditions, such as glare from the sun or the headlights of another vehicle
- Damage to the rear of the vehicle
- Extreme high temperatures or extreme temperature changes

If a malfunction is detected in the system, Service Rear Vision Camera may be displayed on the infotainment display as an indicator to the customer that a problem exists that requires service.

Object Detection Description and Operation (with park assist, UD7)

The ultrasonic parking assist system is designed to identify and notify the driver of an object in the vehicles path when reversing at speeds of less than 8 km/h (5 MPH). The distance and location of the object is determined by 4 object sensors located in the rear bumper. The parking assist system will notify the driver using an audible beep signal through the radio rear speakers.

The parking assist system is made up of the following components:

- Parking assist control module
- Rear object alarm sensors

Parking Assist Control Module

The parking assist control module provides a 12 V reference and a low reference to the four object alarm sensors. The parking assist control module receives individual signals from each of the four sensors and determines the location and distance of an object based on these inputs. When an object is detected, the parking assist control module will send a data message via CAN-Bus to the radio requesting an audible alert.

Rear Object Alarm Sensors

The object alarm sensors are located in the rear bumper of the vehicle. The sensors are used to determine the distance between an object and the bumper. Each sensor emits an ultrasonic frequency which is reflected off any object located behind the vehicle. These reflections are received by the sensors. The time difference between the emission of the frequency and when the reflection is received is known as sensor echo time, it is used to determine the distance to the object. The sensors report this information to the parking assist control module.

Rear Parking Assist Operation

When the vehicle is first placed into reverse there will be one audible beep through the rear speakers, to indicate that the system is working. If rear speakers are inoperable no audible signals will occur.

When backing up at speed of less than 8 km/h (5 MPH), the system is constantly monitoring for object of interest located behind the vehicle. The rear parking assist system can detect objects greater than 7.6 cm (3 in) wide and 25.4 cm (10 in) tall. The system cannot detect objects below the bumper, underneath the vehicle. If an object is detected within 2.5 m (8 ft) there will be a audible beep notification out of both rear speakers based upon the distance to the object. As the vehicle gets closer to an object, the time between the beeps become shorter.

If the vehicle stops in a range zone the beeping will stop after 5 s. When the distance between the object and the vehicle changes, beeping will start again.

If the rear parking assist system detects a malfunction the single audible beep will not chime when put into reverse along with a DTC being stored. The object alarm module will send a serial data message to the instrument panel cluster to display the SERVICE PARK ASSIST message on the driver information center.

Parking Assist System Driver Information Center Messages

SERVICE PARK ASSIST

The driver information center displays SERVICE PARK ASSIST when the parking assist control module detects a malfunction in the rear parking assist system and the system is disabled. The driver information center also displays SERVICE PARK ASSIST when a loss of communication occurs with the parking assist control module.

PARK ASSIST OFF

The PARK ASSIST OFF message is displayed in the driver information center when the parking assist system is disabled due to conditions that disable or inhibit the system. The parking assist control module requests the driver information center display PARK ASSIST OFF when it detects that one of the following conditions:

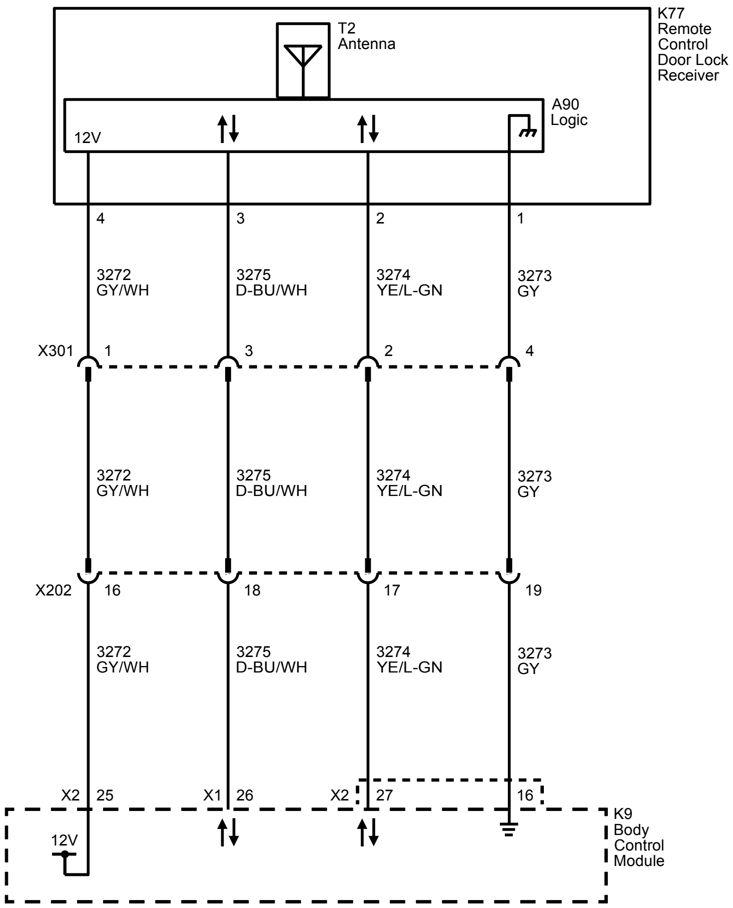
- The rear parking assist system is manually disabled by the vehicle operator through the audio system personalization menu.
- The park brake is applied or not fully released.
- An object is attached to the rear of the vehicle, such as a trailer, bicycle rack, trailer hitch receiver, or tow bar. Also, an object extending beyond a lowered endgate will disable the system.
- The parking assist sensors are covered by snow, mud, dirt or ice.
- The vehicle bumper is damaged.
- Excessive paint thickness on a replacement parking assist sensor.
- The parking assist sensors are disrupted by vibrations, like those caused by a large nearby vehicle or from heavy equipment such as a jackhammer.

Remote Functions

Schematic and Routing Diagrams

Remote Function Schematics

Keyless Entry


K77
Remote
Control
Door Lock
Receiver
T2
Antenna
A90
Logic
12V
4
3
2
1
3272
GY/WH
3275
D-BU/WH
3274
YE/L-GN
3273
GY
X301
1
3
2
4
3272
GY/WH
3275
D-BU/WH
3274
YE/L-GN
3273
GY
X202
16
18
17
19
3272
GY/WH
3275
D-BU/WH
3274
YE/L-GN
3273
GY
X2
25
X1
26
X2
27
16
12V
K9
Body
Control
Module

Description and Operation

Garage Door Opener Description and Operation

The garage door opener is fixed and rolling code capable. Rolling code is a system that allows the code that the customers receiver receives from the garage door opener to change every time the garage door opener is used within operating range of the receiver. Rolling code programming requires the customer to push a learn/program button on the garage door opener receiver at their home. This button is usually located on the receiver unit under a cover (light cover) on one end of the unit. The customer must follow the garage door opener manufacturers instructions to program/learn the receiver to accept the Universal Home Remote System as an authorized opener for their unit . When the receiver and the garage door opener are initially programmed together, a code is established and a new code is created for every new transmission. The software in the receiver recognizes the garage door opener and accepts the new code.

The garage door opener is compatible with most, but not all types and brands of transmitters.

The garage door opener is a transmitter operating between 288–434 MHz. The power and range of the transmitter is limited to comply with laws governing the generation of radio frequency interference. The transmitter is programmed by the user to accept the signal generated by the user's transmitters.

The garage door opener has 3 buttons that may be programmed for individual transmitter/receiver combinations to control up to 3 garage door openers, security gates, lighting systems, etc. Each button represents a transmitter code section of the transmitter, which operates separately from any other button, and may be considered a separate transmitter. Operation consists of simply pressing a button to activate the corresponding transmitter.

Keyless Entry System Description and Operation

The keyless entry system is a vehicle entry device. The keyless entry system is used in conjunction with the door locks to unlock the vehicle. Keyless entry will lock/unlock the vehicle doors or open the rear compartment lid when a corresponding button on the keyless entry transmitter is pressed. This is accomplished by the transmitter sending a radio frequency to the Remote Control Door Lock Receiver antenna that has a direct link to the Body Control Module (BCM). The BCM interprets the signal and activates the requested function or request the appropriate control module to activate the function via a serial data message. A low transmitter battery or radio frequency interference from aftermarket devices, such as 2-way radios, power inverters, computers, etc., may cause a system malfunction. High radio frequency traffic areas, such as gas stations that use pay-at-the-pump radio frequency transponders, may also cause interference that could lead to a malfunction. Keyless entry allows you to operate the following features:

- Door lock/unlock
- Vehicle locator/Panic alarm
- Remote vehicle starting, if equipped

The keyless entry system has the following components:

- Keyless entry transmitters
- Body Control Module
- Remote Control Door Lock Receiver

Keyless Entry Transmitters

Note: When the vehicle key is in the ignition, keyless entry functions from all keyless entry transmitter are disabled.

The keyless entry transmitters are used to perform various entry functions while away from the immediate are of the vehicle. Keyless entry functions may work at up to 20 m (65 ft) away from the vehicle. Ambient conditions may affect the performance of the keyless entry transmitter and reduce the range at which keyless entry functions operate. Up to eight transmitters may be programmed to a single vehicle.

OnStar® Remote Link (if equipped)

A vehicle operator may have the ability to perform some of the keyless entry functions using applications on personal devices such as a smart phone. Unwanted or inadvertent door lock/unlock activation may be requested by the OnStar® Remote Link app. It is possible that a customer may be unaware of account usage, result in an unwanted or phantom door lock/unlock. If normal system diagnosis does results in an inability to verify the customer’s concern, contact Technical Assistance Center (TAC).

Body Control Module (BCM)

The BCM is a multifunction module that operates the keyless entry system. When an radio frequency message is received from a keyless entry transmitter, the BCM interprets this signal and performs the specific function, i.e. door lock, door unlock, or vehicle locate.

Remote Control Door Lock Receiver

The Remote Control Door Lock Receiver acts as an antenna for the keyless entry system and communicates with the BCM through a dedicated serial data link. When a button is pressed on a keyless entry transmitter, the Remote Control Door Lock Receiver receives this signal and sends the request to the BCM. The BCM interprets the signal and performs the specific function, i.e. door lock, door unlock, or vehicle locate.

Unlock Doors

Momentarily press the transmitter UNLOCK button in order to perform the following functions:

- Unlock only the driver door or all doors and liftgate (if equipped); this is customized through the DIC.
- Illuminate the interior lamps for a determined length of time or until the ignition is turned ON.
- Flash the exterior lights; this is customized through the DIC.
- Disarm the content theft deterrent system, if equipped.
- Deactivate the content theft deterrent system when in the alarm mode.

Lock All Doors

Press the transmitter LOCK button to perform the following functions:

- Lock all vehicle doors.
- Immediately turn OFF the interior lamps.
- Flash the exterior lights and/or sound the horn; this is customized through the DIC.
- Arm the content theft deterrent system.

Vehicle Locator/Panic Alarm

A single press of the panic button performs the following functions. Some functions may be dependent on personalization settings:

- Pulse the horn three times.
- Flash the exterior lamps three times.

A press and hold of the panic button performs the following functions:

- Illuminate the interior lamps.
- Pulse the horn and flash the exterior lamps for 30 seconds or until the following conditions occur:

  - The panic button is pressed.
  - The ignition switch is turned to the RUN position with a valid key.

Remote Vehicle Start, if equipped

The remote vehicle start function allows engine starting while not in the vehicle. It also allows the vehicle HVAC system and other vehicle systems to enable, providing a comfortable vehicle upon entry. The remote vehicle start sequence begins by pressing and releasing the lock button and then pressing and holding the remote vehicle start buttons on the keyless entry transmitter. The turn signal lamps will illuminate to indicate the vehicle has received the remote start request. Each time an remote vehicle start is performed, the vehicle doors are locked, however they may then be unlocked/locked with the transmitter or vehicle key at any time. Once activated, the engine is allowed to run for 10 minutes. The remote vehicle start time may be extended by an additional 10 minutes by again pressing and releasing the lock button and then pressing and holding the remote vehicle start buttons on the transmitter. This feature is called a remote vehicle start continue and allows a maximum of 20 minutes of engine running. If the remote vehicle start continue is performed at seven minutes into the initial 10 minute time-out, a total of 17 minutes of engine running would occur. The remote vehicle start event may be suspended at any time by pressing only the remote vehicle start button on the transmitter or by entering the vehicle and pressing the hazard lamp switch.

In between ignition cycles, only two remote vehicle start events may occur or be attempted. Once two events or attempts have been made, future remote vehicle start events will be suspended until the vehicle is started using the ignition.

Enable/Disable Remote Vehicle Start

Using the driver information center, remote vehicle start may be enabled or disabled as a part of vehicle personalization. Refer to the vehicle owners manual for more information.

Hood Ajar Switch

The hood switch provides status of the hood to the BCM for remote vehicle start purposes. The switch is integrated into the hood latch assembly.

Remote Vehicle Start Circuit Description

The BCM receives a signal from the keyless entry transmitter indicating a remote vehicle start request. A message is then sent to the BCM which determines if a crank request message will be sent to the ECM to allow engine starting. To determine if conditions are correct for an remote vehicle start event, the BCM will ensure the following conditions are met:

- A valid hood ajar switch closed signal is present.
- The doors are locked.
- The hazard switch is OFF.
- The vehicle power mode is correct.
- No content theft deterrent alarm triggers are present.

When the BCM determines all conditions meet those required for an remote vehicle start event, a message is sent via serial data to the ECM. The ECM relies on the remote vehicle start message from BCM to enable remote vehicle start when the crank request signal is received. If the ECM does not receive a valid remote vehicle start message, it will not attempt to start the engine. While the ECM is in remote vehicle start mode it will suspend engine operation if any of the following additional conditions occur:

- Vehicle speed is greater than 0.
- Transmission is not in PARK.
- Excessive engine coolant temperature
- Low oil pressure
- The malfunction indicator lamp (MIL) is commanded ON.
- Engine crank time is greater than 30 seconds.
- Excessive engine speed
- Accelerator pedal position too high
- Remote start timer equals 0.
- Immobilizer system indicates tamper

Keyless Entry Personalization

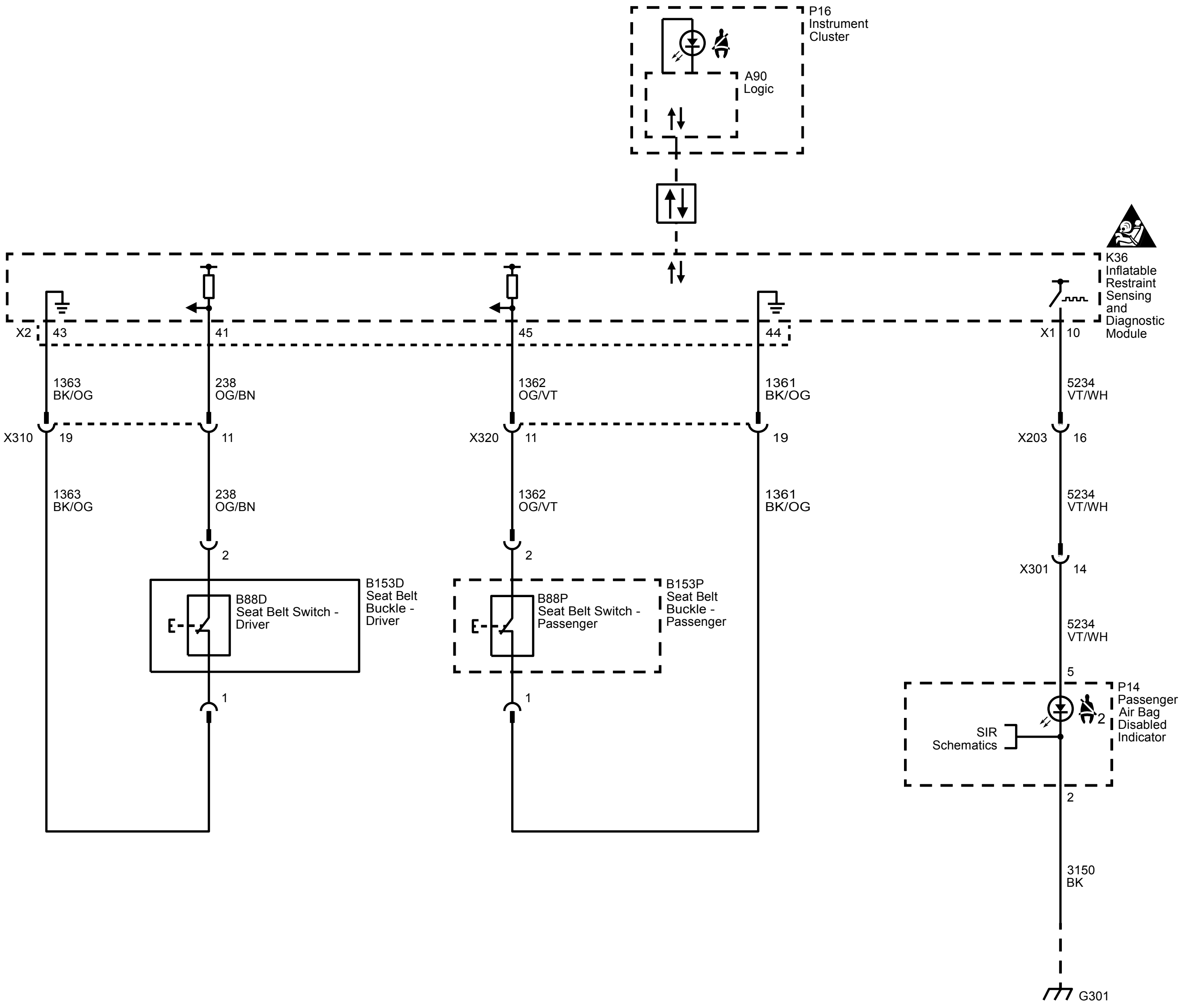
Vehicle lock/unlock functions and remote vehicle start remote vehicle start settings may be personalized. For functional descriptions and personalization instructions, refer to the vehicle owners manual.

Seat Belts

Schematic and Routing Diagrams

Seat Belt Schematics

Seat Belts

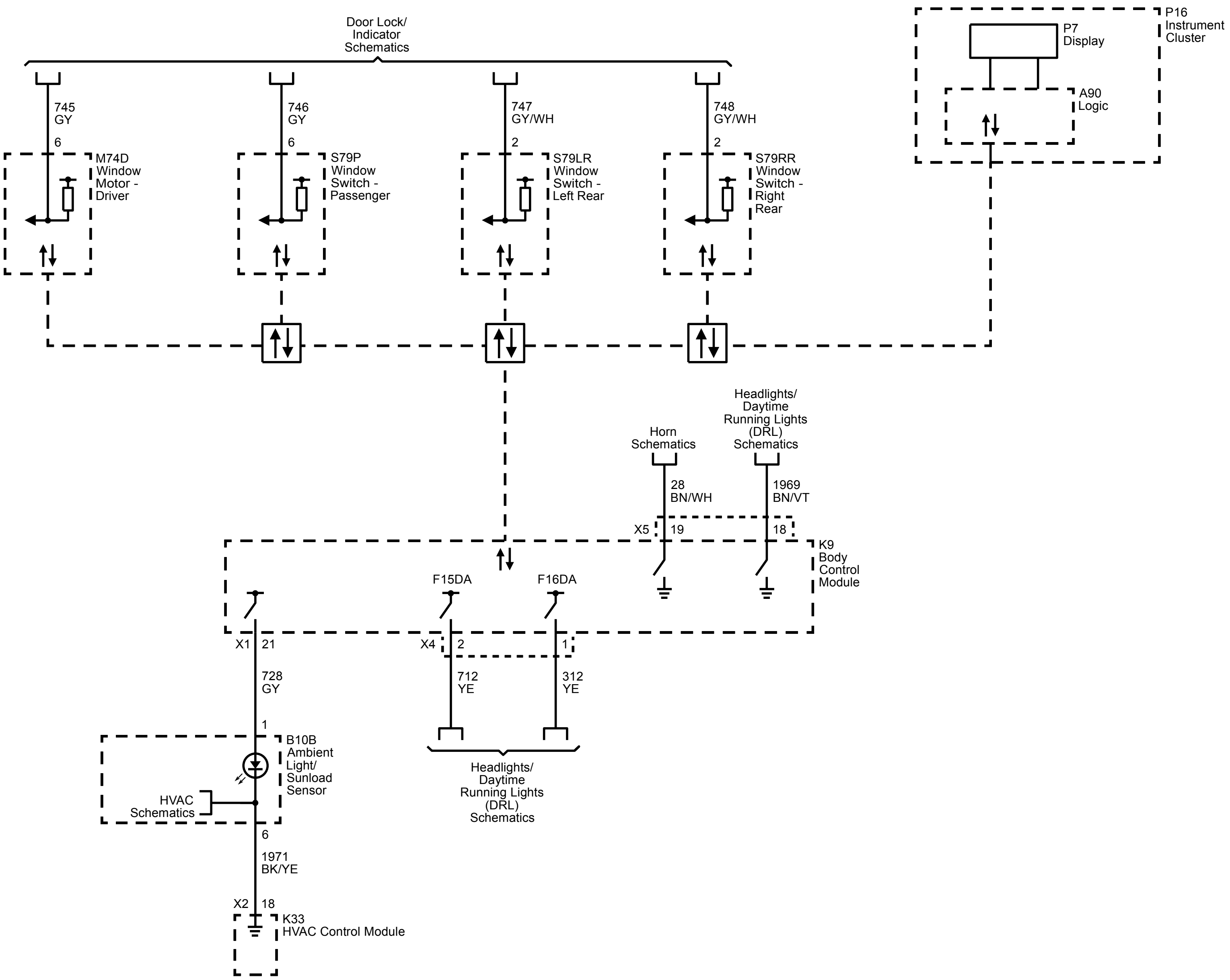

P16
Instrument
Cluster
A90
Logic
K36
Inflatable
Restraint
Sensing
and
Diagnostic
Module
X2
43
41
45
44
X1
10
1363
BK/OG
238
OG/BN
1362
OG/VT
1361
BK/OG
5234
VT/WH
X310
19
11
X320
11
19
X203
16
1363
BK/OG
238
OG/BN
1362
OG/VT
1361
BK/OG
5234
VT/WH
2
2
X301
14
B88D
Seat Belt Switch -
Driver
B153D
Seat Belt
Buckle -
Driver
B88P
Seat Belt Switch -
Passenger
B153P
Seat Belt
Buckle -
Passenger
1
1
5234
VT/WH
5
P14
Passenger
Air Bag
Disabled
Indicator
SIR
Schematics
2
2
3150
BK
G301

Theft Deterrent

Schematic and Routing Diagrams

Theft Deterrent System Schematics

Theft Deterrent System


Door Lock/ Indicator Schematics
745
GY
6
M74D Window Motor - Driver
746
GY
6
S79P Window Switch - Passenger
747
GY/WH
2
S79LR Window Switch - Left Rear
748
GY/WH
2
S79RR Window Switch - Right Rear
P7 Display
P16 Instrument Cluster
A90 Logic
Horn Schematics
Headlights/ Daytime Running Lights (DRL) Schematics
28
BN/WH
1969
BN/VT
X5
19
18
K9 Body Control Module
F15DA
F16DA
X1
21
X4
2
1
728
GY
712
YE
312
YE
1
B10B Ambient Light/ Sunload Sensor
HVAC Schematics
Headlights/ Daytime Running Lights (DRL) Schematics
6
1971
BK/YE
X2
18
K33 HVAC Control Module

Description and Operation

Theft Systems Description and Operation

When armed, the content theft deterrent system is designed to deter vehicle content theft by pulsing the horns and exterior lamps for approximately 30 s when an unauthorized vehicle entry is detected. However, the content theft deterrent system does not affect engine starting.

An unauthorized entry can be any of the following with the content theft deterrent system armed:

- Unauthorized entry into the underhood area
- Unauthorized entry into the rear compartment
- When any door is opened without using the UNLOCK command from a keyless entry transmitter
- After a battery reconnect, if the battery was disconnected with the content theft deterrent system armed

The components of the content theft deterrent system are:

- Body control module (BCM)
- Keyless entry control module (RPO ATH)
- Remote control door lock receiver
- Security indicator
- Door ajar switches
- Rear compartment ajar switch
- Hood ajar switch

Arming the Content Theft Deterrent System

Use the following procedure in order to arm the system:

1. Place the shift lever in P (park).
2. Turn OFF the ignition.
3. Open any door.

   Note: The system is not armed if the doors are locked manually; the power door lock switch or remote keyless entry transmitter must be used to arm the content theft deterrent system.
4. Lock the doors with the power door lock switch or by pressing the LOCK button on the transmitter. The system is in standby mode and will not start the arming timer until all doors are closed.
5. The system will begin the arm sequence immediately after the last door is closed. If the keyless entry transmitter is used the arm the system after the vehicle doors are closed, the arm sequence will begin as soon as the LOCK command is received by the transmitter.
6. Pressing the LOCK button on the keyless entry transmitter a second time will bypass the delayed arming function and force the system to arm.

Locking the Vehicle Without Arming the Content Theft Deterrent System

Locking the vehicle may be accomplished without arming the content theft deterrent system. Use of the manual door locks will lock the vehicle, but will not arm the content theft deterrent system.

Disarming an Armed System/Silencing an Alarm

If system arming has been requested by the power door lock switch or the keyless entry transmitter, it must be disarmed.

Note: Disconnecting the battery or removing fuses does not disable the arm or alarm modes, since the BCM stores the content theft deterrent mode status in memory.

- To disarm the content theft deterrent system in standby mode, perform one of the following:
  - Press the UNLOCK button on the keyless entry transmitter.
  - Approach the vehicle with a valid keyless entry transmitter and pull the vehicle door handle (RPO ATH).
  - Insert a valid key into the ignition and switch to the ON position.
- To disarm the content theft deterrent system in the armed mode (non-event) or when activated (during an alarm event):
  - Press the UNLOCK button on the keyless entry transmitter.
  - Insert a valid key into the ignition and switch to the ON position

Content Theft Deterrent Circuit Description

The following is a description of each component used in the content theft deterrent system:

Body Control Module

The content theft deterrent system is an internal function of the BCM which utilizes serial data and various switch inputs information to perform content theft deterrent functions. When the BCM detects an unauthorized entry, it activates the horns and exterior lamps. The BCM has 4 basic modes (disarmed, standby, armed, and alarm) for operating the content theft deterrent system. The different modes are described below.

1. The BCM has the content theft deterrent system in a disarmed mode until the following conditions are detected:
   - Ignition key turned to the OFF position.
   - Doors locked by either the power door lock switch or the LOCK button on the transmitter.

2. The BCM enters the standby mode when the above conditions are detected. If a door was already opened when the arm mode was requested, the standby mode does not start the timer until the last door is closed.
3. When the last door is closed, a 15 s timer is activated. Once the timer has expired, the BCM enters the armed mode. After this delay, any unauthorized entry will activate the alarm mode.
4. When the BCM detects an unauthorized entry, the BCM enters the alarm mode. The BCM activates the horns and exterior lamps for 30 s. This is followed by a three minute time-out with the horn no longer active. If no new intrusions are detected after the time-out, the horn is not active. The system must be disarmed or the intrusion condition removed after the time-out for the system to exit alarm mode.

Keyless Entry Control Module (RPO ATH)

The passive keyless entry system can arm and disarm the content theft deterrent system. When a valid keyless entry transmitter is detected while attempting to passively access the vehicle, the keyless entry module will send a message via serial data to disarm the content theft deterrent system.

Remote Control Door Lock Receiver

The keyless entry system can arm and disarm the content theft deterrent system. When the remote control door lock receiver receives a door lock or unlock signal from the transmitter, the remote control door lock receiver sends a message to the BCM via serial data to perform the appropriate arm/disarm functions.

Security Indicator

The security LED is illuminated on the upper instrument panel by the BCM. The content theft deterrent system uses the security LED to inform the driver of system status prior to arming.

Door Ajar Switches

The content theft deterrent system uses the door ajar switches as a status indicator to activate the alarm. The door ajar switches are monitored by the body control module via a discrete input from each door ajar switch. If the BCM receives a signal indicating a door is opened when the content theft deterrent system is armed, the BCM activates the alarm.

Hood Ajar Switch

The content theft deterrent system uses the hood ajar switch as a status indicator to activate the alarm. The BCM monitors the hood ajar switch via a discrete input from the switch. If the BCM receives a signal indicating the hood has been opened when the content theft deterrent system is armed, the BCM activates the alarm.

Rear Compartment Ajar Switch

The content theft deterrent system uses the rear compartment ajar switch as a status indicator to activate the alarm. The BCM monitors the rear compartment ajar switch via a discrete input from the switch. If the BCM receives a signal indicating the rear compartment has been opened when content theft deterrent system is armed, the BCM activates the alarm.

Inputs

The BCM monitors the following inputs for content theft deterrent:

- The door ajar switches
- The keyless entry transmitter LOCK/UNLOCK buttons; a message from the remote control door lock receiver
- The BCM uses the immobilizer status for disarming the system or silencing an alarm when the correct vehicle key is used to start the vehicle
- The rear compartment ajar switch
- The hood ajar switch

Outputs

The BCM controls the following for content theft deterrent:

- The horn relay
- The exterior lamps

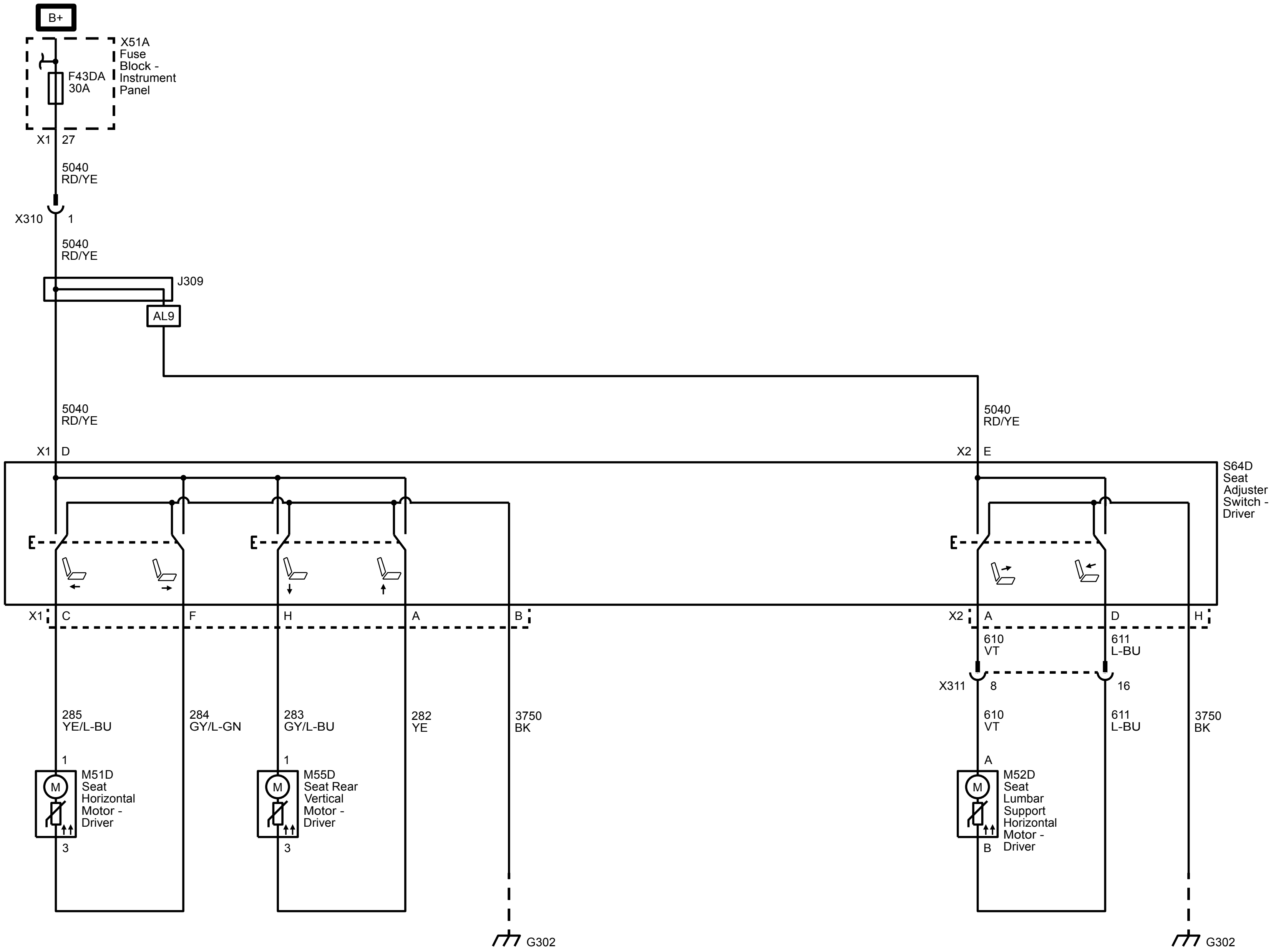
Seats

Power Seats

Schematic and Routing Diagrams

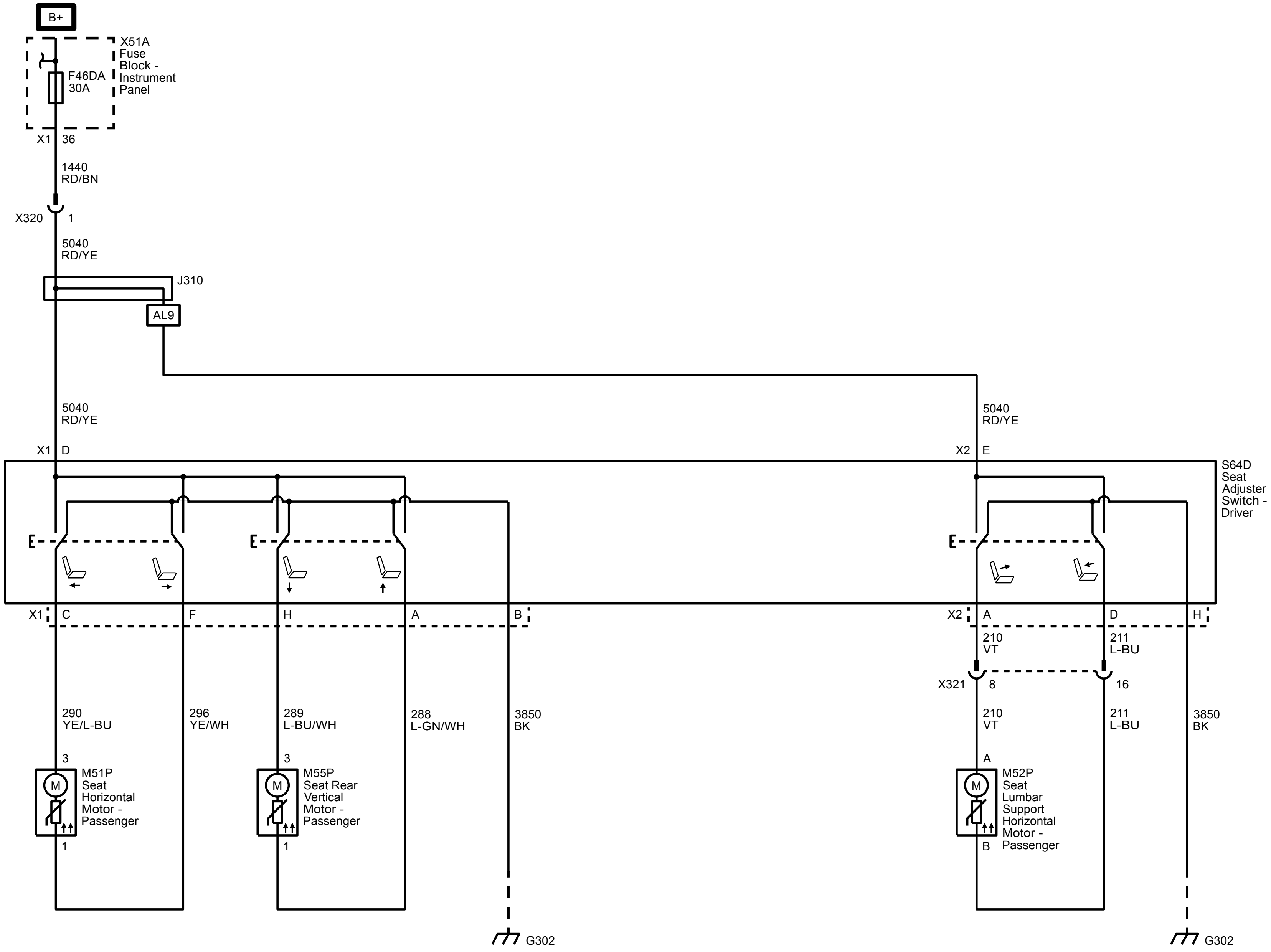
Driver Seat Schematics

Power Seat


B+
X51A
Fuse
Block -
Instrument
Panel
F43DA
30A
X1
27
5040
RD/YE
X310
1
5040
RD/YE
J309
AL9
5040
RD/YE
5040
RD/YE
X1
D
X2
E
S64D
Seat
Adjuster
Switch -
Driver
X1
C
F
H
A
B
X2
A
D
H
610
VT
611
L-BU
X311
8
16
285
YE/L-BU
284
GY/L-GN
283
GY/L-BU
282
YE
3750
BK
610
VT
611
L-BU
3750
BK
1
M
M51D
Seat
Horizontal
Motor -
Driver
3
1
M
M55D
Seat Rear
Vertical
Motor -
Driver
3
A
M
M52D
Seat
Lumbar
Support
Horizontal
Motor -
Driver
B
G302
G302

Passenger Seat Schematics

Power Seat


B+
X51A
Fuse
Block -
Instrument
Panel
F46DA
30A
X1 36
1440
RD/BN
X320 1
5040
RD/YE
J310
AL9
5040
RD/YE
5040
RD/YE
X1 D
X2 E
S64D
Seat
Adjuster
Switch -
Driver
X1 C
F
H
A
B
X2 A
D
H
210
VT
211
L-BU
X321 8
16
290
YE/L-BU
296
YE/WH
289
L-BU/WH
288
L-GN/WH
3850
BK
210
VT
211
L-BU
3850
BK
3
M
M51P
Seat
Horizontal
Motor -
Passenger
1
3
M
M55P
Seat Rear
Vertical
Motor -
Passenger
1
A
M
M52P
Seat
Lumbar
Support
Horizontal
Motor -
Passenger
B
G302
G302

Description and Operation

Power Seats System Description and Operation

The power seat system consists of the following components:

- Seat adjuster switch
- Seat horizontal motor
- Seat rear vertical motor

The seat adjuster switches provide both power and ground to the selected seat motors. The switches are closed to the switch ground circuit while they are in an inactive state.

The seat motors operate independently of each other. Each motor contains an electronic circuit breaker (PTC) that opens in the event of a circuit overload and will reset only after voltage has been removed from the circuit. There are two seat position motors. They are the horizontal motor and the rear vertical motor. The horizontal motor moves the entire seat forward and rearward while the seat rear vertical motor moves the entire seat up and down.

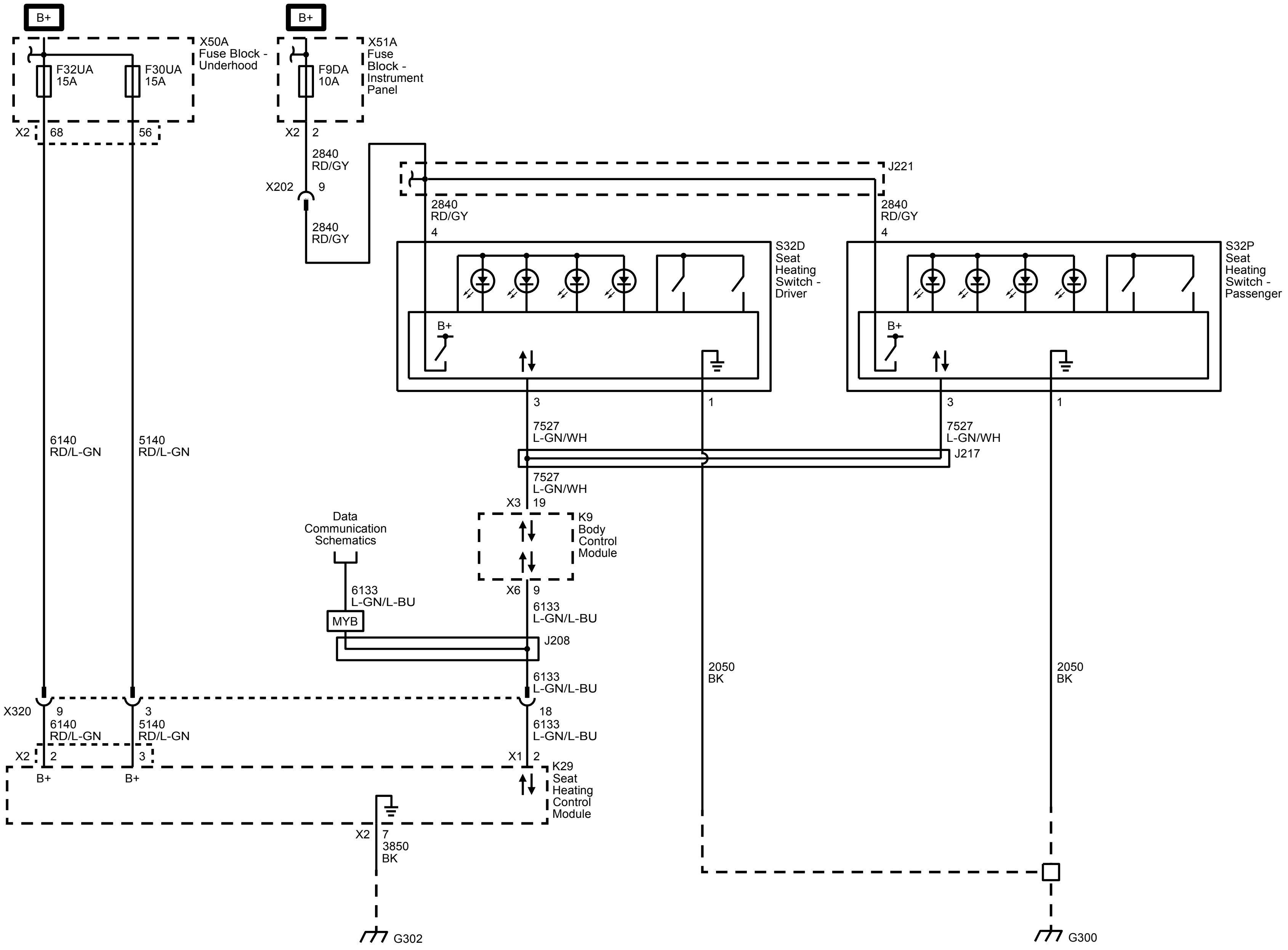
The motors are reversible, for example, when the seat horizontal forward switch is pressed to move the entire seat forward, battery voltage is applied through the switch contacts and the seat horizontal motor forward control circuit to the motor. With the horizontal motor rearward switch contacts closed to the switch ground circuit, the motor runs in order to drive the entire seat forward until the switch is released. Moving the entire seat rearward works similarly to moving the entire seat forward, except that battery voltage and ground are applied on opposite circuits causing the motor to run in the opposite direction. The seat rear vertical motor is also powered this way.

Seat Heating and Cooling

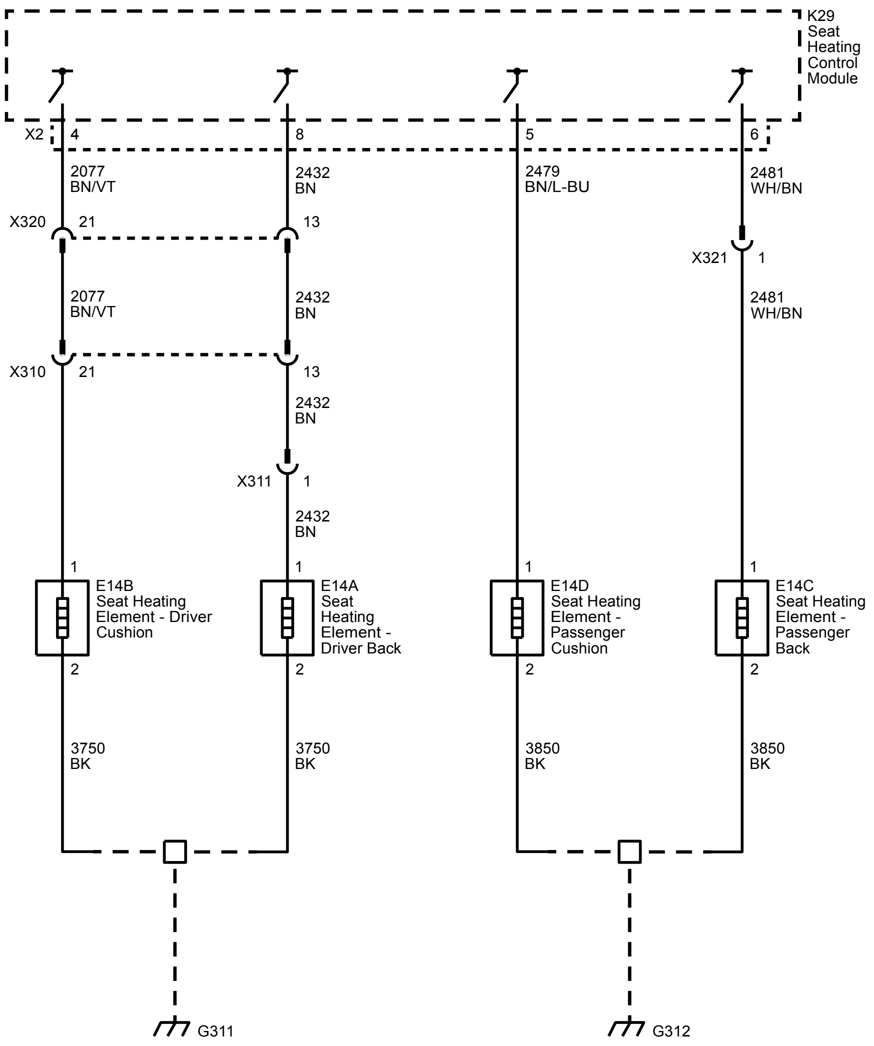
Schematic and Routing Diagrams

Heated/Cooled Seat Schematics

Power, Ground, Serial Data and Switches (KA1)


B+
B+
X50A
Fuse Block - Underhood
F32UA
15A
F30UA
15A
X2
68
56
X51A
Fuse Block - Instrument Panel
F9DA
10A
X2
2
2840
RD/GY
X202
9
2840
RD/GY
J221
2840
RD/GY
4
2840
RD/GY
4
S32D
Seat Heating Switch - Driver
S32P
Seat Heating Switch - Passenger
B+
B+
3
1
3
1
6140
RD/L-GN
5140
RD/L-GN
7527
L-GN/WH
7527
L-GN/WH
J217
7527
L-GN/WH
X3
19
K9
Body Control Module
Data Communication Schematics
6133
L-GN/L-BU
MYB
X6
9
6133
L-GN/L-BU
J208
2050
BK
2050
BK
6133
L-GN/L-BU
X320
9
6140
RD/L-GN
3
5140
RD/L-GN
18
6133
L-GN/L-BU
X2
2
3
X1
2
B+
B+
K29
Seat Heating Control Module
X2
7
3850
BK
G302
G300

Heating Elements (KA1)


K29
Seat
Heating
Control
Module
X2
4
8
5
6
2077
BN/VT
2432
BN
2479
BN/L-BU
2481
WH/BN
X320
21
13
X321
1
2077
BN/VT
2432
BN
2481
WH/BN
X310
21
13
2432
BN
X311
1
2432
BN
1
E14B
Seat Heating
Element - Driver
Cushion
2
1
E14A
Seat
Heating
Element -
Driver Back
2
1
E14D
Seat Heating
Element -
Passenger
Cushion
2
1
E14C
Seat Heating
Element -
Passenger
Back
2
3750
BK
3750
BK
3850
BK
3850
BK
G311
G312

Description and Operation

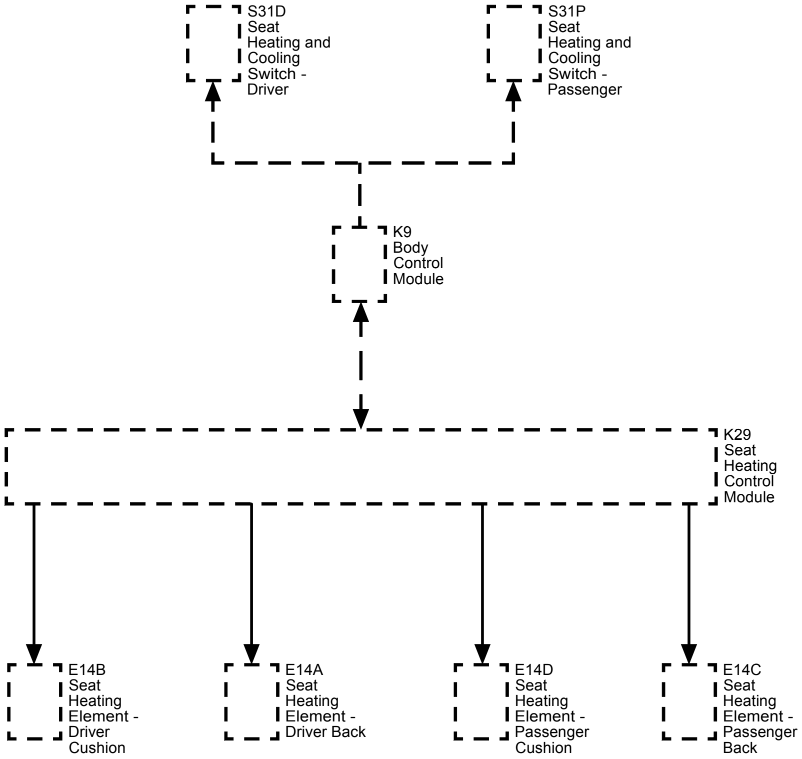
Heated Seats Description and Operation

Heated Seat Components

The heated seat system consists of the following components:

- Seat heating switch
- Body control module
- Seat heating control module
- Seat cushion heating element
- Seat back heating element

Cooled Seat Block Diagram


S31D Seat Heating and Cooling Switch - Driver
S31P Seat Heating and Cooling Switch - Passenger
K9 Body Control Module
K29 Seat Heating Control Module
E14B Seat Heating Element - Driver Cushion
E14A Seat Heating Element - Driver Back
E14D Seat Heating Element - Passenger Cushion
E14C Seat Heating Element - Passenger Back

Heated Seat Switches

The driver and passenger heated seats switches are located in the switch control panel. The body control module (BCM) monitors each switch activation to determine which seat is activated and at what temperature level. With each press of the switch, the system will cycle through High, Medium, Low, and then back to Off again.

When a heated seat switch is pressed, a LIN bus serial data message is sent from the switch to the body control module (BCM) indicating the heated seat command. The BCM serves as the heated seat system master to determine the requested operating mode. The BCM then sends a LIN bus serial data message to the seat heating control module indicating the heated seat command. The BCM also controls the seat temperature and mode indicators, via the serial data line, used to provide the operator with feedback as to the operating status of the system.

Heated Seat Operation

When the seat heating control module receives a heated seat command, it applies a high side drive pulse width modulated (PWM) signals driven at the required duty cycles to generate the appropriate effective voltage to the heating elements to attain the commanded seat temperature.

This heated seat system utilizes a self-regulating heating element system, which is different from the non-regulated heating element systems with seat temperature sensors previously used on GM vehicles. In the self-regulating type of system, temperature feedback to a control module is not required for temperature regulation. The heating element material itself regulates the surface temperature based on the effective voltage applied to the heating element.

Load Shed Management

The electrical power management function is designed to monitor the vehicle electrical load and determine when the battery is potentially in a high discharge condition. The heated seat system is one of the vehicle loads that is subject to reduction during a battery discharge condition. For more information on load management refer to Electrical Power Management Description and Operation.

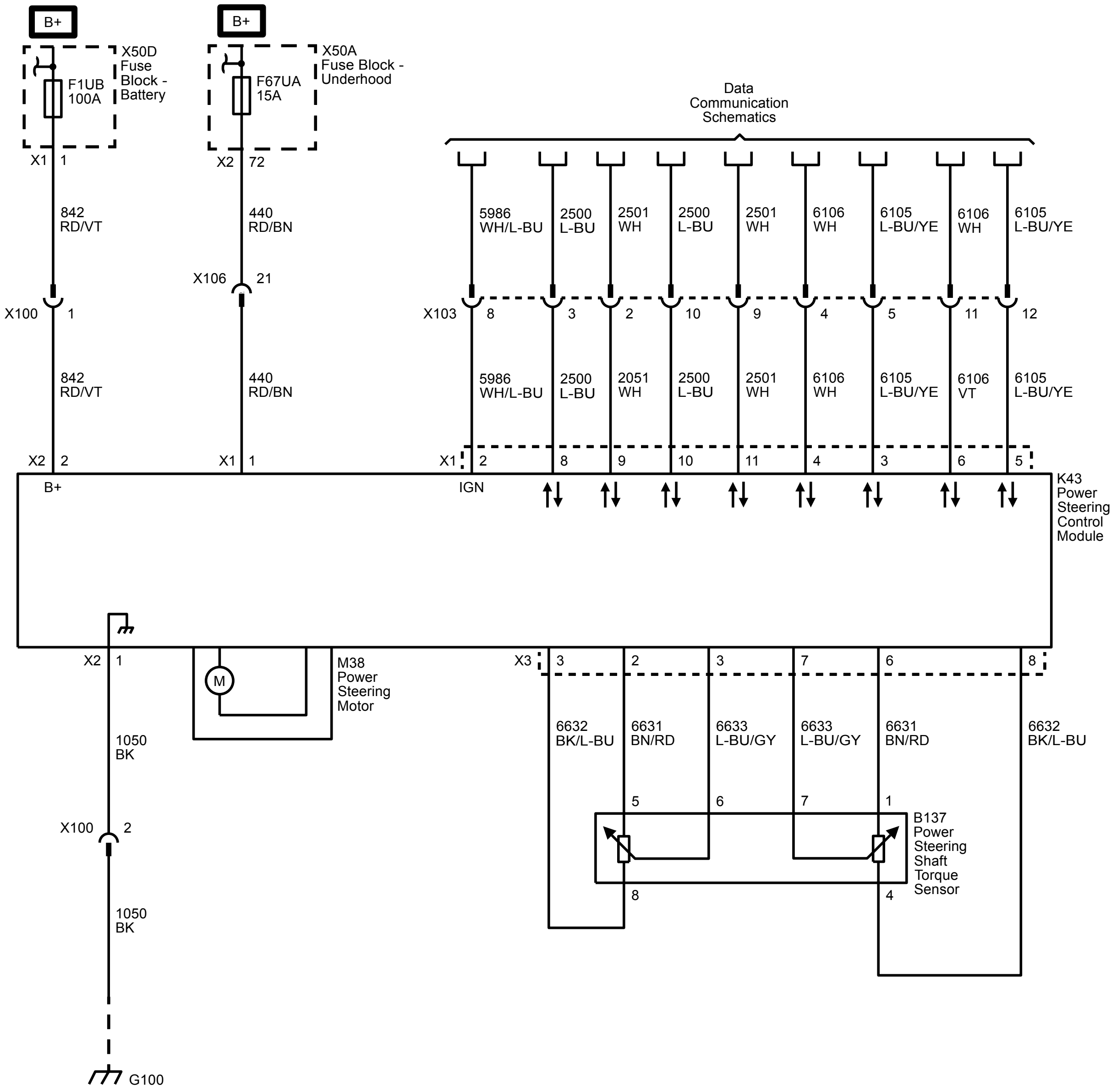
Steering

Power Steering

Schematic and Routing Diagrams

Power Steering Schematics

Electric Power Steering


B+
B+
X50D Fuse Block - Battery
F1UB 100A
X1 1
842 RD/VT
X100 1
842 RD/VT
X2 2
X50A Fuse Block - Underhood
F67UA 15A
X2 72
440 RD/BN
X106 21
440 RD/BN
X1 1
Data Communication Schematics
5986 WH/L-BU
2500 L-BU
2501 WH
2500 L-BU
2501 WH
6106 WH
6105 L-BU/YE
6106 WH
6105 L-BU/YE
X103 8 3 2 10 9 4 5 11 12
5986 WH/L-BU
2500 L-BU
2051 WH
2500 L-BU
2501 WH
6106 WH
6105 L-BU/YE
6106 VT
6105 L-BU/YE
X1 2 8 9 10 11 4 3 6 5
B+
IGN
K43 Power Steering Control Module
X2 1
1050 BK
X100 2
1050 BK
G100
M
M38 Power Steering Motor
X3 3 2 3 7 6 8
6632 BK/L-BU
6631 BN/RD
6633 L-BU/GY
6633 L-BU/GY
6631 BN/RD
6632 BK/L-BU
5 6 7 1
8 4
B137 Power Steering Shaft Torque Sensor

Description and Operation

Power Steering System Description and Operation

The belt driven electronic power steering system consists of the following components:

- The integrated electromechanical power steering unit, containing the power steering control module, its sensors, the power steering motor, a belt drive and a ball nut mechanism.
- The steering gear (rack and pinion)

The power steering control module is part of the power steering assist motor assembly and is replaceable as a complete unit independent of the steering gear assembly. The steering wheel torque and angle sensor is integrated with the steering gear pinion and is serviced as part of the steering gear.

The belt driven electric power steering system reduces the amount of effort needed to steer the vehicle utilizing the power steering control module to control the power steering motor to maneuver the steering gear. The power steering control module also uses a combination of the torque sensor, motor rotational sensor, battery voltage circuit and serial data circuit to perform the system functions. At low speeds more assist is provided for easy turning during parking maneuvers. At higher speeds less assist is provided for improved road feel and directional stability.

The power steering control module continuously monitors the digital torque sensor's torque and index current signals. As the steering wheel is turned and torque is applied to the steering shaft, the steering input and output shafts are monitored via the torque signal circuit and then processed by the power steering control module to calculate the steering torque. The voltage signals of the motor position sensor and the digital torque sensor's index current signal are both processed by the power steering control module to detect and calculate the steering wheel angle.

The power steering control module responds to the change in the digital torque sensor signals as well as the motor rotational sensor's voltage signals by commanding current to the power steering motor. The power steering control module controls the motor drive circuit to drive the alternating current motor. The power steering control module and motor assembly is attached to the base of the steering gear housing and applies power assist directly to the rack with a belt drive and a ball nut mechanism to maneuver the rack laterally depending on the direction the steering wheel is turned.

The power steering control module has advanced software features referred to as Active Pull Compensation and Smooth Road Shake Compensation.

Active Pull Compensation constantly measures steering wheel torque being applied by the driver to maintain the vehicle’s path. When the software detects extra effort being used, the steering assist motor adds torque in the proper direction to prevent the driver from having to make corrections to keep the vehicle on course. The torque assistance reduces driver fatigue and effort and makes steering easier. The software automatically resets itself to compensate for changing road conditions or the vehicle turning on curves. This software feature will compensate for a specific range of lead/pull up to its maximum limit within a set of parameters. The feature can be disabled during diagnostics for appropriate root cause of a complaint vehicle.

Smooth Road Shake Compensation reduces steering wheel rotational vibration caused by an imbalance from the front tire/wheel assemblies. The rotational vibration transmitted to the steering wheel is referred to as Smooth Road Shake and is a phenomenon that occurs only at highway speeds and on smooth roads. The power steering control module employs active controls to sense and reduce the periodic torque component applied to the steering wheel caused by the wheel imbalance force. This software feature will compensate for a specific range of imbalance. If the imbalance is above a certain level, the power steering control module will disable the smooth road shake compensation software feature.

The power steering control module has the ability to calculate an internal system temperature to protect the power steering system from potential damage. To reduce a high system temperature, the power steering control module will reduce the amount of current commanded to the power steering motor, which reduces the amount of steering assist and will set DTC C0176.

The power steering control module has the ability to detect malfunctions within the electric power steering system. Any malfunction detected that disables steering assist will cause the SERVICE POWER STEERING or STEERING ASSIST IS REDUCED DRIVE WITH CARE message to be displayed on the driver information center.

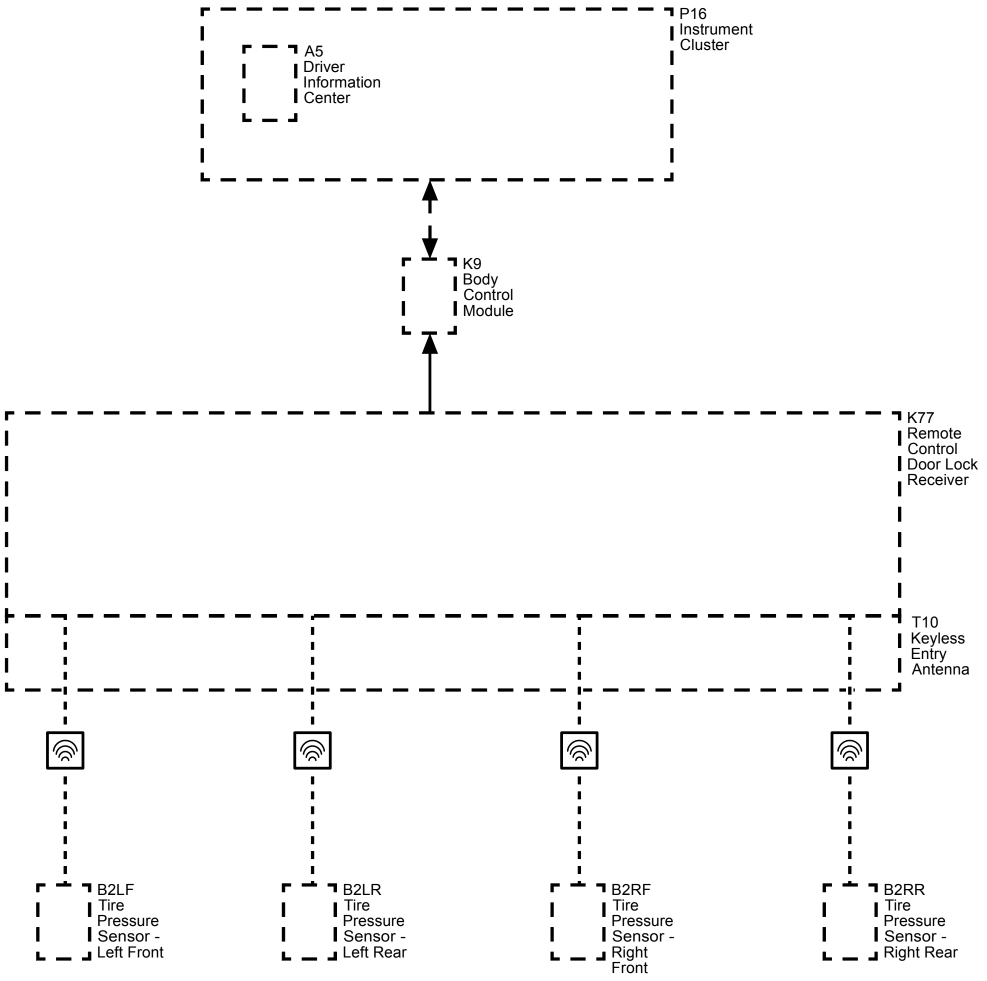
Suspension

Tire Pressure Monitoring

Description and Operation

Tire Pressure Monitor Description and Operation

Tire Pressure Monitoring Block Diagram


P16
Instrument
Cluster
A5
Driver
Information
Center
K9
Body
Control
Module
K77
Remote
Control
Door Lock
Receiver
T10
Keyless
Entry
Antenna
B2LF
Tire
Pressure
Sensor -
Left Front
B2LR
Tire
Pressure
Sensor -
Left Rear
B2RF
Tire
Pressure
Sensor -
Right
Front
B2RR
Tire
Pressure
Sensor -
Right Rear

Special Tools

- *EL-46079/J-46079*Tire Pressure Monitor Diagnostic Tool
- *EL-50448*Tire Pressure Monitor Sensor Activation Tool

For equivalent regional tools, refer to CELL Link Error - Link target cell (cell ID 59410) is invalid for this publication..

The tire pressure monitor system warns the driver when a significant loss of tire pressure occurs in any of the 4 tires and allows the driver to display the individual tire pressures and their locations on the driver information center.

The system uses the body control module (BCM), driver information center, instrument cluster, remote control door lock receiver (RCDLR), and a radio frequency (RF) transmitting pressure sensor in each wheel/tire assembly, and the serial data circuit to perform the system functions. Each sensor has an internal power supply with an approximate 10 year service life.

When the vehicle is stationary, the sensor's internal accelerometer is inactive, which puts the sensors into a Stationary state. In this state the sensors sample tire pressure once every 30 seconds and do not transmit at all if the tire pressure does not change. As vehicle speed increases, centrifugal force activates the sensors internal accelerometer causing the sensors to go into Wake and then Drive mode. In Drive mode, the sensors sample tire pressure once every 30 seconds and transmit in Drive mode once every 60 seconds. The RCDLR receives and translates the data contained in each sensors RF transmission into sensor presence, sensor mode, and tire pressure and passes it to the BCM. In turn, the BCM sends the tire pressure and tire location data to the driver information center via the serial data circuit where they are displayed.

The sensors continuously compare their last pressure sample to their current pressure sample and will transmit in Learn Mode-Pressure Triggered if a 8.3 kPa (1.2 psi) change in tire pressure has been detected in either a

Stationary or Drive state. When the tire pressure monitor system detects a significant loss of tire pressure, the tire pressure monitor indicator icon is illuminated on the instrument cluster and if equipped, a tire pressure low, add air to tire type message is displayed on the driver information center. Both the indicator icon and driver information center message can be cleared by adjusting the tire pressures to the recommended pressures and driving the vehicle above 40 km/h (25 mph) for at least 2 minutes.

If power is disconnected from the BCM or if the vehicle battery is disconnected, each tire pressure monitor sensor ID is retained but all of the tire pressure information is lost. Under these circumstances the BCM cannot assume that the tire pressures were maintained over an unknown period of time. If equipped, the driver information center will display all dashes and the scan tool will indicate a default tire pressure value of 1020 kPa (148 psi) for each tire. Driving the vehicle above 40 km/h (25 mph) for at least 2 minutes will activate the sensors causing the driver information center to display the current tire pressures. The *EL-46079/J-46079* tire pressure monitor diagnostic tool, *EL-50448* tire pressure monitor sensor activation tool, or equivalent may also be used to activate the sensors as well.

The BCM has the ability to detect malfunctions within the tire pressure monitor system. In the event a DTC is set, the tire pressure monitor indicator icon on the instrument cluster, if equipped will flash for 1 minute and then remain illuminated after the ignition is turned ON and the instrument cluster bulb check has been completed. Any malfunction detected will cause the driver information center to display a service tire monitor system type message. For more information on other functions of the BCM, refer to Keyless Entry System Description and Operation.